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NPS-54-88-017

AD-A208 159

# NAVAL POSTGRADUATE SCHOOL

## Monterey, California



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**USAR PRIOR SERVICE MARKET:  
A COMPARISON OF REENLISTMENT  
MOTIVATIONS WITH RESERVE ENLISTMENT  
MOTIVATIONS OF ACTIVE DUTY PERSONNEL**

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December 1988

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Prepared for: U S Army Recruiting Command  
Program Analysis and Evaluation Directorate  
Research and Studies Division  
Fort Sheridan, Illinois 60037-6000

# REPORT DOCUMENTATION PAGE

1a REPORT SECURITY CLASSIFICATION Unclassified		1b RESTRICTIVE MARKINGS	
2a SECURITY CLASSIFICATION AUTHORITY		3 DISTRIBUTION AVAILABILITY OF REPORT Approved for public release; distribution is unlimited	
2b DECLASSIFICATION/DOWNGRADING SCHEDULE			
4 PERFORMING ORGANIZATION REPORT NUMBER(S) NPS-54-88-017		5 MONITORING ORGANIZATION REPORT NUMBER(S)	
6a. NAME OF PERFORMING ORGANIZATION Naval Postgraduate School	6b OFFICE SYMBOL (If applicable) 54	7a NAME OF MONITORING ORGANIZATION U S Army Recruiting Command, Program Analysis and Evaluation Directorate	
6c. ADDRESS (City, State, and ZIP Code) Monterey, CA 93943-5000		7b. ADDRESS (City, State, and ZIP Code) HQUSAREC PAE-MM, Bldg. 48-C Fort Sheridan, IL 60037-6000 Attn: LTC P. Moore	
8a. NAME OF FUNDING/SPONSORING ORGANIZATION U S Army Recruiting Command (same as 7a)	8b OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER MIPR-86-03R	
8c. ADDRESS (City, State, and ZIP Code) USAR PAE-MM, Bldg. 48-C Ft. Sheridan, IL 60037-6000 Attn: LTC R. Moore		10 SOURCE OF FUNDING NUMBERS	
		PROGRAM ELEMENT NO.	PROJECT NO.
		TASK NO.	WORK UNIT ACCESSION NO.
11. TITLE (Include Security Classification) USAR PRIOR SERVICE MARKET: A COMPARISON OF REENLISTMENT MOTIVATIONS WITH RESERVE ENLISTMENT MOTIVATIONS OF ACTIVE DUTY PERSONNEL Unclassified			
12 PERSONAL AUTHOR(S) Thomas, George W. and Davis, Helen			
13a. TYPE OF REPORT Final Report	13b. TIME COVERED FROM TO	14. DATE OF REPORT (Year, Month, Day) December 1988	15. PAGE COUNT 100
16. SUPPLEMENTARY NOTATION			
17. COSATI CODES		18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)	
FIELD	GROUP	SUB-GROUP	
		USAR Enlistment, prior service market enlistment motivations, logit models, Reserve manpower. (SDW)	
19. ABSTRACT (Continue on reverse if necessary and identify by block number) This paper analyzes two decisions of Active Duty personnel: reenlistment and Reserve participation. Explanatory variables used to develop general turnover models for each decision included demographic, tenure, economic, and cognitive/affective orientation. Logit techniques were used to estimate the military affiliation models using data from the 1985 DOD Survey of Active Duty Officers and Enlisted Personnel. Results indicated that first term females tended to have both stronger Reserve intentions and stronger reenlistment intentions. Level of education affected reenlistment and Reserve intentions differently. For reenlistment intentions, college education was not a significant factor. However, enlistees with two or more years of college education had substantially stronger Reserve participation intentions than other enlistees. Cognitive/affective factors of military life had a more significant impact on reenlistment intentions than on Reserve participation intentions. Major policy implications concern the potential impact of educational incentives, the strengths of the female market, and the potential for management impact in job attributes that affect military affiliation intentions. <u>Keywords</u>			
20. DISTRIBUTION/AVAILABILITY OF ABSTRACT <input checked="" type="checkbox"/> UNCLASSIFIED/UNLIMITED <input type="checkbox"/> SAME AS RPT <input type="checkbox"/> DTIC USERS		21. ABSTRACT SECURITY CLASSIFICATION Unclassified	
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Submitted in partial fulfillment of MIPR No. 86-03R

## EXECUTIVE SUMMARY

Retention of trained and experienced personnel is essential to the efficient functioning of all organizations. For the military under the total force concept, there are three important methods of retraining trained personnel: Active Duty reenlistment, Reserve reenlistment, and Reserve enlistment of prior service personnel. This report analyzes and compares the Reserve enlistment intentions and Active Duty reenlistment intentions of Active Duty Army personnel. (A companion report will analyze Reserve reenlistment).

The major research questions were:

- . What are the significant factors which affect a member of the active Army's decision to reenlist or leave the service and join a Reserve/National Guard unit, or to leave with no further military affiliation (turnover)?
- . What are the significant factors which affect the decision of a member of the active Army who intends to leave Active Duty to join or not join the selected Reserve?
- . What are the relative effects of economic, demographic, experience, attitudinal, and alternative employment factors, if any, on the military affiliation decision?

A conceptual model of turnover hypothesized both Active Duty reenlistment and prior service Reserve enlistment intentions to be a function of demographic, occupational, tenure, cognitive/affective orientation, and economic factors. The 1985 Department of Defense Survey of Officer and Enlisted Personnel was used to generate a sample of first and second term Active Duty enlisted personnel.

The sample was partitioned into four groups by gender and term of service. A preliminary bivariate analysis of retention and Reserve enlistment intentions with the candidate explanatory variables yielded several interesting results. A consistent finding across all groups was that the mean level of satisfaction with the opportunity to serve one's country was significantly higher for those who

intend to join the Reserves, or to reenlist, than for those who do not intend some military employment. Men who intend to join the Reserves had a significantly lower mean perception of their chances of finding a good civilian job than those who do not intend to join the Reserves. This was true for both first and second termers. However, for both first and second term females, there was no significant difference in the perception of civilian job opportunities between women who intend to join the Reserves and those who do not intend to join the Reserves. The mean perception of civilian opportunities was significantly less for those who intended to reenlist than for those who do not.

A logit analysis was conducted for each gender/term of service group both for the reenlistment decision and for the Reserve decision. The final models included four composite variables constructed from eighteen cognitive/affective questions concerning satisfaction with aspects of military employment.

#### Male Versus Female Intentions

Females tended to have both higher Reserve intentions and higher reenlistment intentions than their male counterparts in each term of service group, with the exception of the second term reenlistment decision. Perhaps enlisted females who have survived up to the last year of their Active Duty enlistment contract judge military employment to be more equalitarian than civilian employment.

As expected, marital status affected male and female intentions differently. For first term females, being married had a strong negative impact on Reserve intentions. It had a strong positive impact for second term males. Marital status was not significant for either first term males or second term females. For the reenlistment decision, being married had a positive impact for first term males. Marital status was not significant for the reenlistment

decisions of females, either first or second term. As most human capital models and our societal mores would indicate, the value to the family of market time for married females is different than that for married males.

#### Reserve Versus Reenlistment Intentions

For both the prior service enlistment intention and Active Duty reenlistment intention decision first term Blacks had more positive intentions than first term Hispanics or Whites, with the exception of first term Hispanic females. By second term, the only significant difference in Reserve intentions or reenlistment intentions by race, was the higher reenlistment intentions by Black females. For personnel in their second term, processes of self selection and socialization to military life had removed most differences in military affiliation intentions by race.

The most important difference between the factors affecting reenlistment versus Reserve intentions was level of education. First term personnel with two or more years of college education had almost forty percent higher Reserve participation intentions than first term personnel with less than two years college education. However, for reenlistment intentions, college education was not a significant factor. This would seem to indicate that college educational benefits may be a potential source of high benefit for recruiting prior service personnel to the Reserves.

Another difference was the effect of current income. For all four subgroups current income had a significant positive effect on reenlistment intentions. However, current income while on Active Duty, did not have a significant effect on the Reserve participation intention. By comparison, perceived lower civilian opportunities had a negative effect both on Reserve intentions and reenlistment intentions of Active Duty personnel.

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## I. INTRODUCTION AND LITERATURE REVIEW

The effectiveness of the military is dependent in large measure on the skill levels and experience of its personnel. Technological advances throughout the military necessitates not only attracting quality people, but the retention of highly trained and experienced personnel. Thus, controlling turnover in the military is a prime objective for manpower planners. Under the Total Army Concept, there are three important methods of retaining trained personnel: Active Duty reenlistment, Reserve reenlistment, and Reserve enlistment of prior service personnel. Hence, an analysis of Army turnover should explicitly include Reserve participation as an integral part of the analysis. Policies, especially those which affect military pay, benefits, and quality of life must be accurately targeted at factors affecting servicemembers' affiliation decisions.

This paper investigates the military affiliation intentions of Army enlisted personnel. (A companion report analyzes Reserve reenlistment, Thomas and Fithian, 1988). Both full-time (Active Duty reenlistment) and part-time (leave Active Duty and join Reserves) military affiliation is studied. The study identifies the relative importance of factors which affect the intentions of trained personnel to continue their military employment either on a full-time or part-time basis.

### A. Background

A recent review by Muchinsky and Morrow (1980) indicated that employee turnover has been studied in more than 2000 publications over the last 75 years. These studies have not been well integrated, having approached the subject from various disciplinary perspectives such as economics, psychology, and sociology. Psychologists tend to study turnover and its relationship to job satisfaction,

personality, intelligence, aptitude, and biographical data. Sociologists tend to focus on the impact of structural determinants of turnover, such as occupation, type of organization, and management style. Economists emphasize the relationship between turnover, the business cycle, and inter-industry quit rates on the macro level and pay and pecuniary benefits on the micro level. There is no general agreement among researchers either on the relative importance of factors causing turnover or the best model or approach for analyzing voluntary turnover.

Extant literature has viewed turnover from a myriad of perspectives examining relationships between actual turnover and explanatory factors such as individual characteristics, work-related extrinsic and intrinsic factors, and economic factors. Investigation of the basis for voluntary turnover behavior has motivated research on two ancillary antecedent processes: job satisfaction and the organizational commitment.

#### B. General Turnover Research

While the word "turnover" may evoke negative images of good people turning their backs on an organization and leaving, turnover can be functional or dysfunctional for an organization. Dysfunctional turnover is the voluntary separation of people the organization desires to retain. A summary of potential negative consequences is presented in Table 1 (Mowday, 1984). Conversely, functional turnover may result in positive consequences for the organization as poor or undesirable performers quit or are forced out. This, ostensibly, could lead to greater effectiveness and efficiency within the organization.

Mowday (1984) found at least two problems with viewing turnover only in a negative sense. First, it neglects the number of potential positive outcomes associated with turnover as suggested in Mobley (1982), Mowday, Porter and Steers

Table 1. Potential negative consequences of turnover

- . Increased costs; recruiting, selecting, training replacements.
- . Demoralization; those remaining may question their own position in the organization and initiate search strategies for better positions.
- . Negative public relations; are the military services a good place to work?
- . Operational disruption; discontinuity in decision-making, unqualified replacements, less developed job skills.
- . Strategic opportunity costs; unable to pursue growth strategies due to insufficient manpower.
- . Decreased employee social integration; instability in work groups caused by turnover may make establishing close social relationships at work more difficult.
- . Undifferentiated turnover control strategies; incurring unnecessary costs due to ineffective turnover control strategies--poor analysis of why turnover occurs.

Source: Mowday 1984

(1982), and Dalton and Tudor (1982). One positive outcome is the increase in upward mobility as turnover occurs "up the corporate ladder." This assumes that the relative capabilities and potential of prospective replacements and the outgoing incumbent are not too drastically different. Turnover may also allow a marginal performer to move into a vacancy which is a better job match for the skills he or she possesses. The second problem with viewing turnover only as a negative factor is that it may narrow the focus of appropriate managerial responses to the retention of desired personnel.

Muchinsky and Morrow (1980) divided voluntary turnover into three major classes of determinants: individual employee characteristics, work-related factors, and economic variables. Table 2 breaks down these classes of

Table 2. Determinants of turnover and sign of effect

Individual Factors

Age (-)	Intelligence (m)
Length of service (-)	Biodata (m)
Vocational interest (m)	Family considerations (m)
Family size (-,+)	Alternate income sources (+)
Aptitude	Personality (m)

Work Related Factors

Recognition/Feedback (-)	Organization/job prestige
Job autonomy/responsibility (-)	Pay (-)
Supervisory characteristics (m)	Preemployment intervention (-)
Job satisfaction (-)	Task repetitiveness (+)
Organizational commitment (-)	Technology
Seniority provisions (m)	Work unit size (+)
Role clarity (-)	Work unit size (+)
Person-job congruence (-)	Flex-time (-)
Occupation-role integration (-)	Organization size

Economic Opportunity Factors

State of national economy (GNP, unemployment) (+)
State of local economy (+)
Type of industry (-)
State of industry (# job vacancies) (+)
Presence of secondary labor market (+)
Alternate institutional income sources (unemployment, welfare.) (+)

Note: (-) negative relationship to turnover  
 (+) positive relationship to turnover  
 (m) mixed relationship to turnover

Source: Muchinsky and Morrow (1980)

determinants, as well as their relationship (positive or negative) to turnover. While Table 2 is not an exhaustive listing of relevant turnover variables, it does include the principal determinants of turnover used in the majority of analyses conducted to date. Each class of determinants consists of variables which have been proposed as probable antecedents of turnover, and have been

established as correlates of turnover through empirical verification.

Regarding economic factors, it has been suggested that high quit rates are a function of a secondary labor market, that is, an increase in the number of women, teens, and nonwhite workers entering the labor force when jobs are widely available. Secondary labor market members frequently drop out of the labor market when more useful alternatives to paid employment appear (home service, attend educational institution, etc.). Thus it has been hypothesized that the existence of secondary labor markets increase voluntary turnover.

A more recent listing of the correlates of turnover as extracted from turnover literature was compiled by Cotton and Tuttle (1986). Three categories of determinants were developed--external factors, work-related factors, and personal characteristics. Table 3 displays these data. Cotton and Tuttle (1986) parallel Muchinsky and Morrow's findings that age, tenure, pay, job satisfaction, employment options and perceptions, and organizational commitment are stable, reliable correlates with turnover. The negative relationships of age and tenure (length of service) with turnover was verified in earlier studies (Porter and Steers, 1973; Porter et al., 1974; Price, 1977).

Correlates with turnover are plentiful, and many have been empirically supported in numerous studies. Mobley (1982) cited the lack of research on turnover as a process, stating that one-time measures and subsequent bivariate correlational analyses are unable to detect changes in variables, an important consideration in judging the validity of turnover models. This observation has challenged researchers to devote less time to re-verifying correlates of turnover, and to more fully investigating turnover models and developing process-oriented theories of turnover.

Investigations of organizational turnover have typically examined simple

Table 3. Correlates of turnover

External Factors

Employment perceptions  
Unemployment rate  
Accession rate  
Union presence

Work-related Factors

Pay  
Job performance  
Role clarity  
Task repetitiveness  
Overall job satisfaction  
Satisfaction with pay  
Satisfaction with supervision  
Satisfaction with work itself  
Satisfaction with co-workers  
Satisfaction with promotion opportunities  
Organizational commitment

Personal Factors

Age  
Tenure  
Gender  
Biodata  
Education  
Marital status  
Number of dependents  
Aptitude and ability  
Intelligence  
Behavioral intentions  
Met expectations

Source: Cotton and Tuttle (1986)

relationships between job attitudes, perceptions, and turnover. Job satisfaction is generally regarded as one of the more important antecedents of turnover, showing a consistently negative relationship to turnover with correlations ranging between .16 to .40 (Brayfield and Crockett, 1955; Locke, 1976; Porter and Steers, 1973; Martin and O'Laughlin, 1984; Mobley, 1977; Mobley et al., 1979; Price, 1977; Dallesio et al., 1984).

Although job satisfaction is a global and multi-faceted measure, many researchers have relied on a single item or selective index measure of job satisfaction in their studies. Defining overall job satisfaction as the sum of its many facets (discrete elements of which the job is composed) has been shown to neglect some major determinants of job satisfaction.

One problem in the use of job satisfaction measures to identify problems that may be causing high turnover within an organization is contamination of the survey sample. Jackofsky (1984) substantiated that poor performers within an organization are generally the least satisfied with their job. Thus, using a single item measure of overall job satisfaction to survey an organization could potentially mask important relationships in the turnover process.

Another useful construct for predicting organizational turnover is organizational commitment, which concerns itself with the psychological attachments to the organization that make voluntary separation difficult. Mowday, Steers and Porter (1979) define organizational commitment as an acceptance of the goals and values of the organization, a willingness to exert considerable effort in behalf of the organization, and a desire to maintain membership in the organization. It is the relationship between job satisfaction, organizational commitment, and turnover that has prompted much of the latest research for determining organizational turnover.

The major focus of commitment literature has been to identify antecedents of commitment from a variety of categories of variables. These categories have included personal and job characteristics, work experiences, organizational factors, and role-related factors. Through a process of evaluating costs and benefits, individual needs and desires are satisfied. The resulting affective state becomes associated with the organization providing the job and its



associated characteristics and environment. Commitment results from this association.

### C. Turnover Modeling

Research into the development and testing of turnover models has lagged behind research into determining correlating variables of turnover. March and Simon (1958) developed a comprehensive turnover-participation model, including as key decision variables; perceived possibility of intraorganizational transfer, perceived desirability of movement, and perceived ease of movement as key decision variables. Price (1977) utilized a psychological process model similar to March and Simon, and extended the turnover process literature by introducing sociological variables describing organizational conditions such as centralization, co-worker integration, and formalization.

Porter and Steers (1973) developed a psychologically based turnover model premised on the theory of "met expectations" to explain the basis of employee turnover. Their model was devoid of structural and economic factors however, and has received little follow-on research.

Mobley (1977) was one of the earliest proponents of the existence of a withdrawal process as an intermediate linkage between job satisfaction and turnover. The strength of the Mobley approach utilizing a withdrawal process linkage was that it provided several testable hypotheses and addressed in depth the interaction of psychological and economic variables. Structural variables were conspicuous by their absence however.

A study was proposed by Mobley, Griffeth, Hand and Meglino (1979), emphasizing the individual decision process. This model retained intention to quit as the immediate precursor to actual turnover. Intention to quit was determined by job satisfaction, attraction of and present utility of the current

job, and attraction and expected utility of alternative jobs and roles. These determinants were in turn moderated by the centrality of work values or the nonwork consequences of quitting. Organizational, economic, personal, and occupational variables are included as antecedents of perception, values, and expectations of the individual. Individual perceptions and employment alternatives play an expanded role in this model.

Bluedorn (1979) also developed a generalized voluntary turnover model. The exogenous organizational structure variables include organizational control (freedom and individual control of the worker) factors. The exogenous organizational environment variables are labeled environmental push and pull. Environmental push, the voluntariness of joining an organization, occurs at the time of entry and entails the negative sanctioning of an individual for failing to become a member of a specific organization. Environmental pull, comparison of various employment options, operates continually after an individual joins an organization, and refers to both the number of, and quality of higher unoccupied roles. Bluedorn hypothesized the greater the push and/or pull, the greater the propensity to leave the current job.

Steers and Mowday (1981) extended March and Simon (1958) with a 13-stage model of the process of voluntary employee turnover. Included as antecedents of turnover in their model were variables such as individual expectations, job experiences, affective responses to the job, nonwork-related influences, intent to stay, search for alternatives, and availability of alternatives.

Arnold and Feldman (1982), hypothesized that while some variables have a direct effect on turnover, other variables influence turnover through their impact on intent to turnover. Actual turnover was more strongly related to intent to search, tenure, and perception of job security than intent to turnover.

#### D. Military Retention Research (Active Force)

A major difference between termination from military duty and civilian employment is that the law specifically and severely limits the conditions under which military personnel can terminate their service with the armed forces. The focus in this research will be on voluntary terminations from the armed forces which includes voluntary departures during an enlistment term, or terminations through non-reenlistments.

Recent studies (Doering and Grissmer, 1985; Gotz and McCall, 1980; Hiller, 1982; Warner, 1979; Warner and Goldberg, 1982; 1984) have concluded that retention depends heavily on compensation. They find that retention rates are sensitive both to the present and expected future value of compensation, and that, because of the 20 year retirement program, after 10 to 12 years of service, remaining in the military is almost always preferred to civilian employment.

Warner and Goldberg (1984) utilized the Annualized Cost of Leaving (ACOL) model for formulation of the reenlistment decision. The ACOL model is used by Navy manpower planners to predict retention rates for various grades and years of service. A choice based model, it assumes that an individual evaluates the utility associated with immediately leaving the service as opposed to reenlisting for additional periods of service. Utility is calculated from two components. The first component is the present value of the income stream of a selected outcome (reenlist or leave). The second component is the present value of the monetary equivalents of the non-pecuniary aspects of the outcome. An individual would tend to reenlist for an additional period of service only if the ACOL exceeds the net benefits of civilian life. Expected military and civilian pay and retirement benefits are the major variables used in this model. Warner and Goldberg (1984) concluded from their research on the ACOL model that variation in

the ACOL explained much of the variation in the probability of reenlisting.

Other studies measuring the effect of income differentials (Enns, 1977; Hiller, 1982) on retention rates at the end of both the first and second term indicate a similar sensitivity to present and future expected values of income. Income differentials are caused by differences in pay over time, or due to differences in promotion, skills, or performance. Because nearly every form of pay differentials among individuals is nonrandom, ambiguous interpretation of the results generally occurs. Bonus payments to alleviate personnel shortages in the military are an example of nonrandom payments.

Besides the emphasis of research on compensation, additional behavioral variables such as sea-shore rotation and family separation for Navy enlisted personnel (Warner and Goldberg, 1982) as well as attitudinal variables (Chow and Polich, 1983) have been included to explain retention rates along with the standard pay and demographic variables. Doering and Grissmer (1985) cite the need for more experiments in the military to expedite progress in retention research. A limited number of experiments have been undertaken to measure the effects of educational benefits, terms of service, and enlistment bonus payments (Fernandez, 1985).

Hiller (1982) examined the roles of compensation, promotion, location, and job satisfaction in explaining second-term reenlistment in the four services, finding compensation to be a good predictor of enlistees' stated reenlistment probabilities. Hiller also found that certain location and job satisfaction variables were also important, and that the single best overall predictor of reenlistment intentions was the enlistees' expectation of promotion to the next higher grade. This measure reflects compensation somewhat, but also encompasses such nonpecuniary factors as career success and nonpay benefits of promotion to

the next higher level. Stolzenberg and Winkler (1983) concluded that compensation is an important determinant of voluntary termination, and that research has consistently failed to model the relationships among different aspects of satisfaction with military service, including pay. Consequently, it is difficult to assess the total effect of compensation on the termination decision or to know if dissatisfaction with nonpecuniary factors fosters dissatisfaction with remuneration.

Fredland and Little (1983) found job satisfaction was lower for the military than civilians, and that specific elements of satisfaction, rather than personal characteristics of the individual, account for most of this difference. Reasons cited are military rotation policies, imperfect carryover of acquired military training and skills to the civilian sector, perceptions of organizational instability, and misinformation as to the nature of military jobs and placement in those jobs (poor job-match). Similarly they found that race, marital status, education, tenure, hours worked, and labor market experience appear to have little influence on job satisfaction in the military.

Balis and Hager (1983) found that individuals first term reenlistment bonuses had a negative impact on second term reenlistment rates. This effect was found to hold for the Army, Air Force, and Marine Corps. Goldberg (1981) estimated a similar lagged bonus effect for the Navy to be negative and significant as well.

Hand, Griffeth and Mobley (1977) found that incentives, organizational practices, climate, job content, and job satisfaction, intentions, expectations, demographic, psychological, aptitude, and performance variables, explained a small percent of variance in turnover. Table 4 displays a listing of variables found to be statistically significant in explaining actual and intended

Table 4. Reenlistment related variables

Economic and incentive variables related to actual reenlistments

- Reenlistment bonuses
- Age
- Race
- Education
- Estimated civilian earnings
- AFQT scores
- Pay/fringe benefits
- Occupational groups
- Dependents
- Potential for facing combat
- Reservation wage

Economic and incentive variables related to intended reenlistment

- Pay
- Job security
- Proficiency pay
- Overall job satisfaction
- Career satisfaction
- Educational benefits
- Promotion opportunities
- Tenure
- Training opportunities
- Family separation
- Race
- Age
- Geographic location
- Medical benefits
- Nonpecuniary elements (e.g., patriotism, teamwork, etc.)
- Travel opportunities

Source: Hand, Griffeth and Mobley, 1977

reenlistment, and was compiled from research conducted primarily between 1973 to 1977. These variables continue to appear in more recent research on the military reenlistment problem. Carlisle (1975) and Glickman, et al., (1973) found that pay and/or fringe benefits had little effect on the decision to reenlist, but did affect the decision not to reenlist. Schneider (1973) also found that pay accounted for a very small proportion of the variance in the reenlistment

decision for Navy personnel (less than 8 percent).

#### E. Military Retention Research (Reserve Force)

Merritt (1982) found that retirement benefits are substantially more important than current pay levels for enlisted SELRES in the Navy. Pay was, however, found to be the major determinant in the initial active enlistment decision. Family, civilian employer, military peers, and friends were found to be the strongest determinants of participation in the SELRES. Job satisfaction was found to be related weakly to participation, and slightly more important in explaining withdrawal behavior.

Hom, Katerberg and Hulin (1978) tested three approaches to the prediction of turnover of National Guardsmen. They found that three of five aspects of job satisfaction (work, pay, and supervision) were significantly correlated with reenlistment. When organizational satisfaction was added to the regression equation, it improved the prediction of reenlistment. Organizational commitment also predicted reenlistment intention and behavior, correlating .68 with the intention, and .58 with the actual reenlistment decision. They also found that organizational commitment was a better predictor of these criteria than a linear combination of job satisfaction measures. Finally, Hom, et al., found that intention to reenlist was highly related to actual reenlistment ( $r=.67$ ), and correctly classified 80 percent of the cases.

Brinkerhoff and Grissmer (1984) cited pay, the extent of moonlighting, unemployment, enlistment and continuation bonuses, educational tuition grants, training, and general taste for the military as important determinants of affiliation factors within the Reserves in an all-volunteer environment. The quality and demographic composition of SELRES personnel is roughly comparable to the active force.

Rostker and Shishko (1973) developed a theory of moonlighting, or secondary labor market participation, to explain the behavior of Air Force Reservists. The theory identified several important economic variables in a civilian moonlighting decision, including primary job hourly wage, primary job hours, and secondary job hourly wages. Grissmer, Burright, Doering and Sachar (1982) and Grissmer, Doering and Sachar (1982) indicated that expected results of offering reenlistment bonuses to Army Reservists and National Guardsmen would increase reenlistment rates by 30 to 40 percent. The actual result was only a five percent increase in reenlistment rates, much smaller than anticipated. This supported the notion that reservists do not behave like civilian moonlighters, in contrast to Rostker and Shishko (1973). Grissmer, et al., conclude that the Reserve job seems to be somewhere between a kind of "voluntary" participation and the typical monetary-induced moonlighter.

Amev, Fechter, Huck and Midlam (1976) constructed a primitive Reserve supply model using a simple theory based on elements of existing theories of military occupational choice and secondary labor market participation. McNaught (1981) tested this model and found that, for nonprior service accessions, unemployment rate was the most significant variable. For prior service accessions unemployment rate was not significant overall while primary wage was. McNaught attributed the lack of significance of the unemployment variable for prior service accessions to their greater labor market experience and larger stocks of human capital.

Burright, Grissmer and Doering (1982) listed five aspects of Reserve participation that set it apart from other second jobs and voluntary activities, briefly:

- . Periodic full-time requirement of Reserve duty often conflicts with primary job



- . Legally committed to at least one year up to six years of service
- . Reserve participation provides unique fringe benefits
- . Nonpecuniary rewards (patriotism, comradeship)
- . Inflexible Reserve schedule

Unique fringe benefits include items such as insurance, educational benefits, tax benefits, and retirement benefits.

### Summary

In summary, most turnover research has concentrated on identifying and understanding the correlates of turnover. These studies have not been well integrated, having approached the subject from various disciplinary perspectives such as economics, psychology, and sociology. Psychologists tend to study turnover and its relationship to job satisfaction, personality, intelligence, aptitude, and biographical data. Sociologists tend to focus on the impact of structural determinants of turnover, such as occupation, type of organization, and management style. Economists emphasize the relationship between turnover, the business cycle, and inter-industry quit rates on the macro level and pay and pecuniary benefits on the micro level. There is no general agreement among researchers either on the relative importance of factors causing turnover or the best model or approach for analyzing voluntary turnover. Civilian turnover models constructed from various hypothesized turnover processes have not, in general, been empirically supported when applied in military studies.

## II. DESCRIPTION OF DATA AND METHODOLOGY

### A. Research Objectives

The major objective of this study is to integrate hypotheses and research methods from civilian labor force studies with existing military research findings on turnover, and to develop and test a model which can be used to explain affiliation intentions of first and second term enlisted personnel.

Major questions of interest include:

- . What are the significant factors which affect a member of the active Army's decision to reenlist or leave the service and join a Reserve/National Guard unit, or to leave with no further military affiliation (turnover)?
- . What are the significant factors which affect the decision of a member of the active Army who intends to leave Active Duty to join or not join the selected Reserve?
- . What are the relative effects of economic, demographic, experience, attitudinal, and alternative employment factors, if any, on the military affiliation decision?

The research will investigate two discrete affiliation choices: (1) reenlist on Active Duty, or not, and (2) leave Active Duty and join the Reserves/Guard or not. In order to keep the samples as homogeneous as possible, only first term and second term Active Duty enlisted servicemembers with one year or less remaining on their contract were included. The samples were further stratified by including only servicemembers in specific paygrade and age windows for first and second terms.

### B. Data

The data used in this study were generated from the Department of Defense 1985 Survey of Officer and Enlisted Personnel. The survey was sponsored by the Office of the Assistant Secretary of Defense (Force Management and Personnel) and conducted to provide a basis for systematic examination of policy sensitive

information about the military life cycle such as active and Reserve force enlistment decisions, career orientations, responses to policies that affect military members and their households, and decisions to leave the military (Doering, et al., 1986).

The survey was fielded in January 1985 to a worldwide sample of approximately 132,000 active-duty military members in all four services, also were stationed either in the United States (CONUS) or overseas on 30 September 1984. Officers, females, and Marine Corps personnel were sampled at a higher rate to facilitate more detailed analyses of these groups. Each servicemember sampled had completed a minimum of four months or more of active duty. Most of the questionnaires were completed in March 1985, meaning that respondents in the member survey were those who had completed 10 or more months of service at the time of survey administration. Data collection was completed in June 1985 and 70,025 usable enlisted member questionnaires (70.1 percent) were returned.

Three questionnaire forms were used, one each for officers, enlisted personnel and spouses. The nine subject areas of the enlisted questionnaire, which were virtually the same for officers, are described in Table 5.

For the purpose of retention analysis, the 1985 DoD Survey lacks the questions regarding respondents' comparison levels of job attributes between military and perceived alternative civilian employment which were available in the 1978 DoD Survey (Doering et. al., 1980). Stolzenberg and Winkler (1983), among others, have very persuasively argued for the need to use information on the satisfaction of military personnel with military work, life, and pay relative to the satisfaction on these dimensions that they believe would be available to them as civilians. Unfortunately, the current 1985 Survey asked questions about

satisfaction which were framed in an absolute mode, not a comparative one.

Table 5. Major subject areas of the  
1985 DoD member survey

**Military Information**—Service, paygrade, military occupation, term of enlistment.

**Present and Past Locations**—Length of stay, expected stay, problems at present location and in moving to the location.

**Reenlistment and Career Intentions**—Expected years of service, expected paygrade, probably behavior under different management options.

**Individual and Family Characteristics**—Age, gender, marital status, number and ages of dependents.

**Dependents**—Age, number, gender, physical and/or mental handicaps.

**Military Compensation, Benefits, and Programs**—Valuation of military medical services, commissary and exchange privileges, family programs, base pay, allowances for quarters and subsistence, perceived tax advantages.

**Civilian Labor Force Experience**—The household's civilian work experiences.

**Family Resources**—Level of household debts and non-wage or salary sources of income.

**Military Life**—Attitudes about various aspects of military life, including compensation, interpersonal environment, and benefits.

For our study, data for Army enlisted personnel who were within 12 months of the end of their term of enlistment, in their first or second contract term, and who were not band members were selected from the 1985 survey. For the purpose of studying interest in the Reserves of Active Duty personnel, these data were analyzed for four groups:

- (1) males in the first enlistment term,
- (2) females in the first enlistment term,
- (3) males in the second enlistment term, and
- (4) females in the second enlistment term.

To achieve relatively homogeneous groups representing these subpopulations, several sample relative criterion were used. The Army first term servicemembers selected for analysis were restricted to paygrades E2, E3, E4, and E5, 18 to 30 years of age, one to six years of Active Duty and, if the servicemember is an E2, less than two years of active duty. Second termers were restricted to E4 and E5, 20 or more years of age, and 3 to 9 years of active duty. Appendix A presents a schematic of this sample selection process.

### C. Methodology

A conceptual model of the process of military service affiliation used initially in this paper is

Military affiliation =  $f(\text{demographic, tenure, cognitive/affective, economic, and employment alternatives})$

This model is derived from the turnover literature and will be used to explain the military service affiliation intentions of first-term servicemembers approaching the reenlistment decision point. This model will be tested using the enlisted servicemember's responses to the 1985 DoD Survey of Officer and Enlisted Personnel administered by the Defense Manpower Data Center. The candidate variables used to predict military affiliation intentions were grouped into the following categories:

- . Demographic--Biographical information allowing placement of respondent in various groups for analysis.
- . Tenure--Variables which provide information about the respondent's length of service and obligated service remaining.
- . Cognitive/Affective Orientation--Variables designed to assess an individual's perception of, and attachment to, his/her job and the Service.
- . Economic Incentives--Variables used to measure the relative financial situation of the respondent with respect to other individuals and/or families in both the military and civilian sectors.

- . Perception of Employment Alternatives—The respondent's assessment of alternatives to current military affiliation and perceptions of military vs. civilian employment trade-offs.

The construct measuring military affiliation intention (dependent variable) is the respondent's intentions regarding continued military affiliation derived from responses to two survey questions. The decision each respondent faces is whether to:

- . reenlist, or
- . leave the military and join the Reserves/National Guard, or
- . leave the military and not join the Reserves/National Guard

The affiliation construct will be investigated by examining results of two bivariate-choice based models for the reenlist and Reserve decisions respectively. Each model will be analyzed individually as well as comparatively to assess the impact of candidate explanatory variables on continued military affiliation intentions.

For the two binary-choice models (reenlistment or not) and (join Reserves or not), the logit model will be used to analyze these unique dichotomous choices. The logit model is based on the cumulative logistic probability function and can be expressed as:

$$\ln[P_i/(1-P_i)] = a + B_1X_{i1} + B_2X_{i2} + \dots + B_nX_{in} + U_i \quad (1)$$

where  $P_i$  is the probability that the  $i$ th person will make a particular choice and  $X_{ij}$  is the  $j$ th characteristic of individual  $i$ . Since the dependent variable in this nonlinear equation is the log of the odds that a particular choice will be made,  $B_j$  measures the impact of a change in  $X_j$  on the log of the odds, holding the other explanatory variables constant.

#### D. Variable Selection

##### 1. Identification of Dependent Variables.

###### a. Reserve Intentions

The measure of intention to join the National Guard or Reserve is based on the response to the question "When you finally leave the military, do you plan to join a National Guard or Reserve Unit?" There are six responses to this question:

definitely yes,  
probably yes,  
don't know,  
probably not,  
definitely no; and  
not eligible.

The dependent variable, RESERVE, was coded as a yes if the respondent answered "definitely yes," and as a no if the respondent answered "definitely no." All other responses were not included. By analyzing the definitely yes or no responses, we hope to identify the relationship of Reserve interest to the explanatory factors. Servicemembers who indicated that they intended to stay in the military until retirement were eliminated from the Reserve intention analysis since retired military are not eligible for the Reserves. Intentions to stay until retirement were determined by the question "When you finally leave the military, how many total years of service do you expect to have?" Servicemembers intending to have 20 or more years of service when they leave the military are considered to intend to retire. Appendix B presents a crosstabulation of Reserve intentions with retirement intentions.

Excluding servicemembers who intend to retire, and servicemembers who were not "definitely yes" or "definitely no" on their intentions to join the Reserves, there were 208 first term males, 178 first term females, 163 second term males and 167 second term females. Table 6 presents the

Reserve intentions for each of the four groups. A higher percentage of women, both in the first and second terms, intend to join the Reserves than men.

Table 6. Intentions to join the Reserves by term of service and gender (in percent)

<u>Intend to Join Reserves/Guard</u>	<u>Male</u>	<u>Female</u>
First Term total n	40.4 (208)	53.4 (178)
Second Term total n	35.6 (163)	53.3 (167)

b. Reenlistment Intention

The reenlistment criterion is based upon the question "How likely are you to reenlist at the end of your current term of service?". The responses to this question were on an eleven point scale:

no chance,  
very slight possibility,  
slight possibility,  
some possibility,  
fair possibility,  
fairly good possibility,  
good possibility,  
probable,  
very probable,  
almost sure; and  
certain.

In addition to the eleven point scale, a respondent could answer "don't know," "I plan to leave service" or "I plan to retire." The dependent variable, REENLIST, is coded as yes if the respondent answered "certain," "almost sure," or "very probable." Responses of "I plan to leave service," "no chance" and "very slight possibility" are coded as a no for REENLIST. Appendix C contains a frequency distribution of this variable for each of the four groups.



The distribution of reenlistment intentions is shown in Table 7. A smaller percentage of first term males and females intended to reenlist than of second term males or females. Both term of service and gender are related to reenlistment intentions. For both males and females, first termers had lower reenlistment intentions. First term males (25.6%) had a much lower intention to reenlist than did first term females (37.1%). However, through processes of socialization, employer selection, and self selection, there is little difference between reenlistment intentions of second term males (49.2%) and females (46.7%).

Table 7. Positive reenlistment intentions by gender and term of service (in percent)

<u>Intend to Reenlist</u>	<u>Male</u>	<u>Female</u>
First Term total n	25.6 (712)	37.1 (496)
Second Term total n	49.2 (565)	46.7 (475)

## 2. Candidate Explanatory Variables

As discussed in the literature review, variables used in the analysis of the turnover decision can be grouped into five general factor categories: demographic, tenure, cognitive/affective orientation, economic incentives, and perception of employment alternatives. Within this framework, Survey questions were examined for construction of potential explanatory variables in these five factor categories. These candidate variables are discussed below by category.

a. Demographic and Occupational Variables.

A listing of candidate demographic variables and their values are presented in Table 8. The variables race, age, education, mother's education, father's education, marital status, number of dependents, and military occupation are questions which were asked directly of the respondent in the survey. Entry age, family status, and career field were created from one or more questions from the survey.

The variable Race was recoded into four dummy variables: White, Black, Hispanic, and Other. Age at entry into the military was created from two variables, age and months of service. Noting that age is in years and length of service is in months, this variable is calculated as age minus the quantity (months of service divided by 12).

A servicemember's years of education was used to create the variable, college. Any servicemember with two or more years of college is coded as a one for this variable. A servicemember with less than 14 years of education is coded as a zero.

Mother's education and father's education were used to create a new variable, maximum parental education. This variable is the actual years of education of the parent with the most education.

Marital status and number of dependents have been combined into one variable, family status. If a servicemember was single, divorced, separated, or widowed he was considered single. A servicemember married for the first time or remarried was considered married. This family status variable has four categories: single, with no dependents; single, with one or more dependents; married, with no dependents; and married, with one or more dependents. These categories were treated as dummy variables.

Table 8. Candidate explanatory demographic variables

<u>Variable</u>	<u>Description</u>
Race	White; Black; Hispanic; Other
Age	Current age in years
Age at entry into military	Entry age in years
Education	Number of years of education
College	Less than 2 years of college; two or more years of college
Mother's Education	Number of years of education of mother
Father's Education	Number of years of education of father
Maximum of parental education	Actual number of years of education
Marital Status	Married first time; Remarried; Widowed; Divorced; Separated; Single, never married
Number of dependents	Number of people related to respondent by blood, marriage or adoption depending on respondent for over half their support
Family Status	Single, no dependents; Single, with dependents; Married, no dependents; Married, with dependents
Military occupation	MOS codes
Career field	Combat; Combat support; Combat service support; Medical services

The Army has over 300 MOS codes. To capture occupational effects, these codes were reduced to four groupings to create the variable, military job type: combat, combat support, combat service support, and medical service.

b. Tenure variables

Tenure consistently has been found to be negatively related to turnover. The tenure related variables from the 1985 DoD Survey are presented in Table 9. As discussed earlier, time remaining in contract was used to select individuals who were within one year of leaving the service. Also, enlistment period was used as a criteria for separating servicemembers by term into relatively homogeneous groups of first and second termers. Partitioning the data by there important tenure variables will have the effect of yielding more models, each having smaller explanatory power than a single aggregate model with these tenure variables as explanatory variables. However, separate models for first and second term will permit insight into how other factors vary in their impact on the decisions of first and second-termers.

Length of service and paygrade were used to create the variable, advancement rate, by dividing the months of service by the paygrade. The result is an approximation of the average number of months in each paygrade for the

Table 9. Candidate explanatory tenure variables

<u>Variable</u>	<u>Description</u>
Length of service	Number of months of service
Paygrade	Enlisted Paygrades E2; E3; E4; E5
Advancement rate	Average number of months in each paygrade
Contract	Two-year contract; Contract for more than two years

individual servicemember.

The length of initial contract was determined for first term servicemembers by adding the months of service remaining and the months served in the military. This variable was constructed to indicate whether the initial obligation was a two-year contract or greater than a two-year contract.

c. Candidate cognitive/affective variables

A list of cognitive/affective variables is presented in Table 10. These variables are used to assess servicemember's perception of and feelings regarding their job and their relationship with the Army. The servicemembers

Table 10. Candidate explanatory cognitive/affective variables

<u>Variable</u>	<u>Description</u>
Personal freedom	For each variable the scale is:
Acquaintances/ friendships	Very dissatisfied = 1
Work group/ coworkers	Dissatisfied = 2
Assignment stability	Neither satisfied nor dissatisfied = 3
Pay and allowances	Satisfied = 4
Environment for families	Very satisfied = 5
Frequency of moves	
Retirement benefits	
Opportunity to serve ones country	
Satisfaction with current job	
Promotion opportunities	
Job training/in-service education	
Job security	
Working/environmental conditions	
Post-service educational benefits	
Medical care	
Dental care	
Commissary services	

were asked to measure their level of satisfaction with issues particular to a military way of life.

d. Candidate economic variables

A listing of candidate income and economic incentive variables are presented in Table 11.

Table 11. Candidate explanatory income variables

<u>Variable</u>	<u>Description</u>
Taxable military income	Actual amount in dollars
Spouses income	Actual amount in dollars
Spouse earns \$200 or more per week	Single, spouse not working, spouse earns less than \$200 per week; Spouse earns \$200 or more per week

Taxable military income was created by DMDC from the 8503 JUMPS file. Spouse's income was reported by the respondent on the survey. A dichotomous variable was created based on spouses income. This variable places all single servicemembers, servicemembers with spouses not working, and servicemembers with spouses who work but who do not make at least \$200 per week into one group. Servicemembers with spouses working and making \$200 or more per week are in the other group. It is hypothesized that a servicemember with a spouse working earning \$200 or more per week will be less likely to join the reserves.

e. Candidate perceived employment alternatives

Thoughts of quitting, intentions to search for employment alternatives, and intentions to quit, are all related to the availability, or perceived availability, of alternatives to military service. Also, the chances of

finding a good civilian job would affect the likelihood of leaving the military and joining the reserves. Reserve force participation could be less likely if the servicemember perceives that he/she will find a good civilian job.

The servicemembers evaluation of civilian employability is measured by the likelihood of finding a good civilian job. This variable is rated on a scale of zero to ten, with zero being no chance of finding a good civilian job and ten being certain to find a good civilian job.

### III. BIVARIATE ANALYSIS

A bivariate analysis of the dependent variables by the candidate explanatory variables is presented for each of the four groups: male first term, female first term, male second term, and female second term. An F-test was used to determine statistically significant differences between Reserve/Not Reserve and Reenlist/Not Reenlist subgroupings and the mean values of the continuous candidate explanatory variables. A chi-square test of independence was used to compare the differences of discrete candidate explanatory variables between the subgroups defined by the dependent variables. Tables indicating the bivariate results are given in Appendix D. The results of bivariate analysis for each decision and each group are discussed below.

A consistent finding across all groups was that the mean level of satisfaction with the opportunity to serve one's country was significantly higher for those who intend to join the Reserves, or to reenlist, than for those who do not intend some military employment. Men who intend to join the Reserves had a significantly lower mean perception of their chances of finding a good civilian job than those who do not intend to join the Reserves. This was true for both first and second termers. There was no significant difference in the perception of civilian job opportunities between women who intend to join the Reserves and those who do not intend either in the first term or the second term. The mean perception of civilian opportunities was significantly less for those who intended to reenlist than for those who do not.

#### A. Reserve Intention

##### 1. Male First Term

First term males who indicate they will join the Reserves differ from ones who will not join the Reserves in several aspects. The future Reservist has



more dependents to support, and is more likely to join the Reserves if he has dependents to support whether he is married or single. Although a future reservist does not have significantly less education than the nonreservist, his parents have significantly less education than the nonreservist. A Black or Hispanic servicemember is more likely to join the Reserves than White or all other races. The annual wages for a man who intends to join the Reserves are higher than those of a man who intends not to join. The perceived employment alternatives are fewer for someone intending to join the Reserves than for someone who is not intending to join. Of the eighteen issues of satisfaction with military life, all but three showed significantly higher mean levels of satisfaction for those intending to join the Reserves than those not intending to join. These three issues are satisfaction with friends, satisfaction with coworkers and satisfaction with promotions. This indicates that the future reservist is generally more satisfied with the military way of life than the servicemember who decides not to join the Reserves. Appendix D.1 shows the characteristics of first term males by Reserve intention.

## **2. Females First Term.**

Female reenlisters do not differ from nonreenlisters as much as the males in the first term do. The only demographic characteristic upon which women reenlisters differed from nonreenlisters is race. The proportion of Black and Hispanic women who intended to join the Reserves, (67.8% and 66.7%) is much higher than the proportion of White women who planned to join the Reserves, (43.6%). Women reservists did not differ from nonreservists on any of the tenure, income or perceived employment alternative measures. However, a difference in mean levels of satisfaction for several of the cognitive/effective variables was detected. These issues were satisfaction with stability, moves, serving country,

training, security, working environment, VEAP, medical and dental benefits. For each of these issues, women who intend to join the Reserves had a higher level of satisfaction than women not intending to join the Reserves. Appendix D.2 shows the characteristics of first term females by Reserve intention.

### 3. Males Second Term.

As with males in the first term, the servicemember who intends to join the Reserves when he leaves the military has parents with a average maximum education of one year less than the parents of servicemembers who do not intend to join the Reserves. For these second termers the education of the mothers of servicemembers who intend to reenlist is one year less than those who do not intend to reenlist. Reservists also perceive their civilian employment opportunities as fewer than those who do not intend to join the Reserves. Again, the mean satisfaction of issues associated with military life are significantly higher for those who intend to join the Reserves than for those who do not intend to join. The only two issues which did not show a significantly higher mean level of satisfaction for those who intend to join the Reserves are stability and retirement benefits. The racial composition of those intending to join the Reserves is different from those who do not intend to join. Half of the Hispanics intend to join the Reserves, 48.5% of the Blacks and only 20.8% of the Whites. Appendix D.3 shows the characteristics of second term males by Reserve intention.

### 4. Females second term.

Females in the second term who do not intend to join the Reserves do not differ significantly from those intending to join the Reserves on any demographic, tenure, income or employment alternative variables. Additionally, on the cognitive/affective variables, those intending to join the Reserves have a

significantly higher mean level of satisfaction on only seven of the eighteen issues of military life. These issues are personal freedom, friends, stability, pay, family environment, serve country, and work environment. Appendix D.4 shows the characteristics of second term females by Reserve intention.

## B. Reenlistment Intention

### 1. Male First Term

Male first termers who plan to reenlist also had more dependents than male first termers who did not intend to reenlist. Additionally, they were older currently and at entry. Black and Hispanic servicemembers were also more likely to reenlist than not. Married servicemembers were more likely to reenlist than singles, especially if they had children. The higher the paygrade the more likely a person was to reenlist. In fact, no E2s intend to reenlist, while 25.8% of the E3s, 44.2% of the E4s and 43.8% of the E5s intend to reenlist. E-2's could be problem personnel who have had trouble in Active Duty and are positive losses for the Army. This explains why first term men who reenlist have more months of Active Duty, have a higher average advancement rate and earn more money than nonreenlisters. As discussed in the literature review, turnover is related to one's perception of other job opportunities. The members who intend not to reenlist have a significantly higher perception of good civilian job opportunities than servicemembers who intend to reenlist. Of the eighteen facets of satisfaction with military life, reenlisters' mean levels of satisfaction were significantly higher than nonreenlisters' on all but two facets: VEAP and dental benefits showed no significant differences between mean levels of satisfaction for reenlisters compared with nonreenlisters. Appendix D.5 shows the characteristics of first term males by reenlistment intentions.

## 2. Female First Term

First term females intending to reenlist differ significantly from those not intending to reenlist. Reenlisters have more dependents, are currently older, and were older when they entered the military. A higher proportion of Black and Hispanic women intended to reenlist than White or Others. Those married with children or single with children had a higher proportion of reenlisters (49.6 and 42.9 respectively) than those single without children or married without children (28.6 and 36.3). The proportion of reenlisters increased as paygrade increased. There are no female E2s, one-third of the E3s intended to reenlist, 53.3% of the E4s and 58.8% of the E5s intended to reenlist. Again, this is why reenlisters have more months of Active Duty, a higher advancement rate and earn more money. As was anticipated, women who intend not to reenlist have a higher perception of good civilian opportunity than women who intend to reenlist. Of the eighteen issues of satisfaction with military life, only two issues did not show a significantly higher mean for reenlisters than nonreenlisters. These were satisfaction with friends and satisfaction with promotions. Appendix D.6 shows the characteristics of first term females by reenlistment intentions.

## 3. Male Second Term

Second term males intending to reenlist do not differ demographically except in their family status and occupation. Over half, 55.4%, of married servicemembers with dependents intend to reenlist compared to only 36.3% of single servicemembers with no dependents. The military occupation with the highest proportion of reenlisters is medical services and the occupation with the lowest proportion of reenlisters is combat. Those servicemembers who intend to reenlist have a significantly higher mean level of satisfaction on each of the

eighteen military life issues. Appendix D.7 shows the characteristics of second term males by reenlistment intentions.

#### 4. Females Second Term

Those women who intend to reenlist for a third term have mothers whose average years of education is less than for the mothers of those who do not intend to reenlist. The higher the paygrade the higher the proportion intending to reenlist. Thus, the average months of service and annual wages are higher for those intending to reenlist than those intending to leave. The perception of civilian employment opportunities is lower for those who intend to reenlist than for those who intend to stay. Only seven of the means for the eighteen satisfaction with military life issues are significantly higher for reenlisters than for leavers: personal freedom, retirement, serve country, current job, training, security, work environment, and VEAP. The differences between reenlisters and leavers in this group are presented in Appendix D.8.

#### IV. MULTIVARIATE ANALYSIS

##### A. Variable Reduction.

The eighteen aspects of satisfaction with military life are highly correlated with one another. To gain an impression of the interrelationships present in this data, factor analysis was used as a method of transforming the original variables into new uncorrelated variables. Table 12 lists the most important variables for each of four factors. The factor groupings are listed in their order of importance as indicated by their explained variation.

The factor analysis created four factors from the eighteen aspects of military life. The first factor explains 29.8% of the variation within these variables. This factor is composed of issues associated with a military type job: satisfaction with current job, training, security, promotions, working environment and serving country. The second factor is composed of aspects concerning military benefits and explains 8.4% of the variation. The issues loading into these factors are satisfaction with dental, medical, commissary and VEAP benefits. Issues associated with military life style, satisfaction with moving, retirement, pay, stability and family environment, compose the third factor, explaining 6.8% of the variation. Satisfaction with friends, coworkers, and personal freedom are the aspects comprising the fourth factor, explaining 6.1% of the variation and is labelled relationships.

##### B. Model Results.

Results of the bivariate analysis were used to eliminate multiple measures of the same attribute from the list of candidate explanatory variables, e.g., (parental education). The final models include all four of the composite variables constructed from the eighteen cognitive/affective questions concerning

Table 12. Satisfaction with military life variables/factors

<u>Factor</u>	<u>Satisfaction with Military issues loaded in factor</u>	<u>Percent of variation explained</u>
1. Military job	Current job Training Security Promotions Working environment Serving country	29.8%
2. Benefits	Dental Medical Commissary VEAP	8.4%
3. Military life style	Moves Retirement Pay Stability Family environment	6.8%
4. Relationships	Friends Coworkers Personal freedom	6.1%

satisfaction with aspects of military employment. Table 13 presents the variables which were used in the final reenlistment and Reserve models.

A logit analysis was conducted for each gender/term of service group both for the reenlistment decision and for the Reserve decision. Appendix E presents the logit results of the eight estimated models. Each table includes the coefficient value and associated significance level for each variable when the full model is used. In addition, to assist in ascertaining the relative importance of individual variables, the coefficient value, associated significance level, and percent correctly classified for each variable when used individually in a single variable equation are included in these tables.

Table 13. Variables in final models

<u>Variable</u>	<u>Value</u>
Length of initial contract	1 if 2 year, 0 otherwise
Entry age	Continuous
Black	1 if yes, 0 otherwise
Hispanic	1 if yes, 0 otherwise
Combat support	" "
Combat support service	" "
Single with dependents	" "
Married no dependents	" "
Married with dependents	" "
Civilian opportunities	Continuous; 1=no chance, 10=certain
Advancement rate	Continuous; avg. no. of months in each paygrade
College education	1 if 2 or more years of college; 0 otherwise
Maximum parent education	Continuous, years
Wages	Continuous, dollars
Spouse earns over \$200 a week	1 if yes; 0 otherwise
Satisfaction with military	Continuous; 1=very dissatisfied, 5=very satisfied
Satisfaction with benefits	" "
Satisfaction with military life style	" "
Satisfaction with relationships	" "

As indicated in Table 13, each of the models presented in Appendix E were estimated using sets of dummy variables for racial family composition, and military occupation categories. For all models, the base case category for race is "White plus Other" so the coefficients in the model for Black represents the change in the log of the likelihood ratio of a Black joining the Reserves, or reenlisting, in relationship to Whites and Others.

Family composition has been divided into four groups: single with no dependents, single with dependents, married with no dependents, and married with dependents. The base case category is single with no dependents. Unless otherwise designated, combat was used as the occupation for the base case, so that the coefficients for combat support, combat support service and medical



service are in comparison to combat.

The logit Reserve intention model for males in their first term is presented in Table E.1 and is reproduced here. An interpretation of this Table is as follows: This model is able to correctly classify 78.6% of the cases. Without using the model, on average, 62.1% of the cases could have been correctly classified. The full model contains four variables which are statistically significant at the .10 level. Black has a large positive coefficient, indicating that Blacks are more likely to join the Reserves. Members with two or more years of college are more likely to join the Reserves than members with less education, as is indicated by the positive coefficient. Two variables created by the factor analysis are significant in the logit model: satisfaction with military job and military life style. The more satisfied a member is with these issues the more likely he is to join the Reserves.

The maximum number of years of parents education does not have a significant effect in the full model, but when this variable is used alone to predict Reserve force participation, it correctly classifies 65.0% of these cases. The sign of the coefficient indicates that the more education the members parents have the less likely he is to join the Reserves. The opposite relationship holds true for the dummy variable which indicates if the member has had two or more years of college education. In the full model, the variable is significant and indicates that if the member has had two or more years of college that he is much more likely to join the Reserves. However, when this variable is used alone in a logit model it is not significant and does not improve the ability to predict Reserve force participation.

Table E.1 Reserve intentions logit results,  
first term males

Actual Reserve Intention: 37.9%

<u>Variable</u>	<u>Full Model</u>		<u>Single Variable</u>		<u>% Correctly Classified</u>
	<u>Beta</u>	<u>Sign. Level</u>	<u>Beta</u>	<u>Sign. Level</u>	
Intercept	0.25	.95			
Contract	-0.36	.64	-0.89	.04	62.1
Entry Age	-0.15	.24	-0.07	.43	62.1
Black	1.57	.08	1.45	.02	65.7
Hispanic	0.45	.63	0.77	.27	62.9
Combat support	-0.14	.79	0.20	.57	62.1
Combat support service	0.28	.74	0.16	.76	62.1
Medical services	-9.10	.65	-7.88	.74	62.1
Single with dependents	0.58	.52	0.77	.27	62.9
Married no dependents	-0.96	.35	-0.80	.33	62.1
Married with dependents	1.03	.12	0.81	.07	63.6
Civilian opportunities	0.02	.84	-0.06	.38	62.1
Advancement rate	-0.07	.61	0.05	.49	62.1
College education	1.56	.06	0.21	.68	62.1
Max. parent education	-0.03	.66	-0.11	.05	65.0
Wages	0.36	.23	0.25	.14	63.6
Spouse earns \$200/Wk	0.71	.61	0.52	.53	62.1
Military job	0.74	.01	0.82	.01	70.0
Benefits	0.14	.57	0.25	.14	61.4
Military life style	0.54	.05	0.52	.01	61.4
Relationships	0.27	.29	0.28	.12	61.4

N=140

% correctly classified 78.6

#### C. Effect of Individual Factors: Prior Service Reserve Intentions

The impact of individual factors on Reserve intentions or reenlistment intentions can be measured by calculating the change in intention likelihood due to changes in specific factors from a base case individual. Table 14 presents the base case individual for all logit models. As indicated in Table 14, the base case individual was slightly different in some models due to unavailability of data and/or low sample size.

Table 14. Base case individual for logit models

Contract:	Not on a two-year contract <sup>1</sup>
Race:	White or Other
Career field:	Combat MOS <sup>2</sup>
Family status:	Single without dependents <sup>3</sup>
Education:	Less than 14 years education
Spouse earnings:	Does not have a spouse earning \$200+/week
Entry age:	Average
Civilian opportunities:	Average
Advancement rate:	Average
Parent education:	Average
Wages:	Average
Satisfaction with military job:	Average
Satisfaction with military benefits:	Average
Satisfaction with military lifestyle:	Average
Satisfaction with military relationships:	Average

<sup>1</sup>Not available for second term model

<sup>2</sup>Combat MOS or Combat Support MOS for second term female Reserve model

<sup>3</sup>Single with or Single without dependents for second term male Reserve model

Table 15 presents the effects of individual variables on prior service Reserve enlistment intentions. For the base case individuals, Reserve enlistment intentions varies from a high of 34% for first term females to a low of 4% for second term males. Appendix G discusses how the estimated logistic equation is used to calculate the base case likelihood assessment and the partial effects values in Table 15. Note that the low value of 4% in Table 15 is for a particular base case scenario. If instead of marital status being single, a second term male was married without dependents, then his Reserve enlistment likelihood increases by 36% to 40%. In other words, if the base case family status for second term males had been married without dependents, then in Table

Table 15. Effect of individual variables on  
prior service Reserve enlistment intention

	Males <u>1st Term</u>	Females <u>1st Term</u>	Males <u>2nd Term</u>	Females <u>2nd Term</u>
Base case	.27	.34	.04	.72
<u>Variable</u>				
Contract	-.06	.18	a	a
Black	*.37	*.44	-.02	-.10
Hispanic	.10	.24	.00	.16
Combat support	-.03	.14	.02	a
Combat support services	.06	.09	.03	.11
Medical services	-.27	.22	.36	.05
Single with dependents	.13	-.15	a	.03
Married without dependents	-.15	*-.21	*.42	-.07
Married with dependents	.24	*-.21	*.16	-.17
College education	*.37	*.42	.05	-.04
Spouse earns \$200+/week	.16	.02	.05	.17
Av. entry age + 1 yr	-.03	-.01	.00	.01
Av. civilian opportunities + 10%	.00	*-.04	*-.02	-.02
Av. advancement rate + 3 months	-.04	.03	.01	-.12
Av. max. parental education + 1 yr	-.01	-.03	*-.01	-.01
Av. annual wages + \$1,000	.08	.05	-.02	.05
Av. satis. w/military job + 10%	*.04	*.03	.01	.01
Av. satis. w/benefits + 10%	.01	*.04	*.02	.01
Av. satis. w/military lifestyle + 10%	*.03	*.03	-.00	.01
Av. satis. w/relationships + 10%	.01	.00	.00	*.02
n	140	121	74	100

<sup>a</sup>This variable not included in model.

\*Coefficient of this variable is significantly different than zero at .10 level.

15 the base case Reserve intentions would have been .40 and in a variable row of "single without dependents" for family status, the entry would have been -.36.

It is important to note that the assessments of the impact of change in individual explanatory variables in Table 15 are not additive. They are counterparts to partial deviatives and in each instance are calculated under the condition that other explanatory factors are held constant at their base case level. The impact of multiple changes in explanatory variables (alternative

scenarios) is discussed later in this chapter.

Appendix F gives an example of how the estimated logistic regression equation for Reserve enlistment intentions was used to calculate the base case probabilities.

Several interesting results are present in Table 15. Black male and female first termers have a substantially greater interest in the Reserves than do Whites, 37% and 44% respectively. While Hispanic first termers also have a higher interest in the Reserves, they are not statistically significant differences. Black second termers do not have a higher interest in the Reserves than do Whites. A somewhat surprising result is that career fields are not significantly related to Reserve intentions.

As expected, family status was a significant factor for prior service Reserve enlistment intentions. For first termers, being married for females had a negative effect in Reserve intentions, while for second term males, being married had a positive effect on Reserve intentions. For second term females, being married had a negative but not statistically significant effect on prior service Reserve enlistment intentions. For second termers, it may be that the economic incentives for married males increases Reserve enlistment intentions, while for married females the value of nonmarket time decreases their Reserve enlistment intentions.

The effect of college education was perhaps the most insightful for potential policy implications. Compared to individuals with less than fourteen years education, first term males and females with two or more years of college education have 37% and 42% higher Reserve enlistment intentions, respectively. Policies of providing college assistance for prior service participation in the Reserves should be analyzed for their high potential for cost effective

recruiting benefits.

Neither spouse earning over \$200 per week nor entry age were significant factors for Reserve enlistment intentions. While statistically significant only for first term females and second term males, the effect of increased civilian opportunities was to decrease Reserve enlistment intentions for prior service personnel.

Advancement rate and wages did not have a significant effect on Reserve enlistment intentions for any of the subgroups. This may be due to narrow paygrade restrictions applied to the sample under analysis: E1-E4 for first termers and E4-E5 for second termers.

Each of the composite satisfaction factors with active duty military life had some significance for Reserve enlistment intentions. A ten percent increase in average satisfaction with "military as a job" would increase Reserve enlistment intentions for first term males and females by 4% and 3% respectively. Satisfaction with benefits was significant only for first term females and second term males. Satisfaction with military life style was significant only for first termers. By time of second term, socialization and self selection have limited the impact of differences in satisfaction with military lifestyle: those most dissatisfied as first termers did not stay on to be second termers. "Satisfaction with relationships," friends and coworkers, was significantly related to Reserve intentions only for second term females.

#### D. Model Results: Active Duty Reenlistment

As with the Reserve decision, a logit analysis was conducted for each gender/term of service group. Tables E.5 through E.8 present the reenlistment model for first term males, first term females, second term males, and second

term females respectively. In general, these models do not fit as well as the counterpart Reserve Intention models. Data on bonuses and other reenlistment incentives may be necessary to improve the fit of the reenlistment models.

Table 16 presents the effects of individual factors on Active Duty reenlistment intentions. Race is important for first term reenlistment intentions but is not significant for second termers. Black male and female first termers have 28% and 19% higher reenlistment likelihoods than do their white peers, respectively. Hispanics also had higher reenlistment intentions but statistically significant differences only for first term females.

As with the prior service Reserve intentions model, career fields were not significant factors for reenlistment intentions. As expected family status was an important factor. Married personnel generally had higher reenlistment intentions with the exception of second term married women. Full time military employment for married women may present many obstacles for dual career households. For married males, in relation to single males, the Army was preferred to civilian employment. Compared to single males, first term males married without dependents and married with dependents have 24% and 20% greater reenlistment intentions respectively.

College education had nowhere near the impact on reenlistment intentions that it had on prior service Reserve enlistment intentions. In fact, although not statistically significant, it had the opposite effect for first and second term females and second term males. College educational benefits would not appear to be a viable reenlistment incentive policy.

Neither spouse earnings nor entry age were significant factors affecting reenlistment intentions. Similarly, advancement rate was not an important reenlistment factor.

Table 16. Effect of individual variables on  
Active Duty reenlistment intentions

	Males <u>1st Term</u>	Females <u>1st Term</u>	Males <u>2nd Term</u>	Females <u>2nd Term</u>
Base case	.14	.46	.35	.38
<u>Variable</u>				
Contract	-.05	-.07	a	a
Black	*.28	*.24	.02	.18
Hispanic	.07	*.22	.02	.03
Combat support	-.04	.09	-.01	.06
Combat support services	.02	.25	.04	.07
Medical services	.07	.20	.15	-.07
Single with dependents	-.07	.08	.15	.11
Married without dependents	*.24	.10	.15	-.06
Married with dependents	*.20	.10	*.19	-.01
College education	.05	.04	-.03	-.07
Spouse earns \$200+/week	*-.09	.09	.04	-.07
Av. entry age + 1 yr	.00	.02	-.01	-.01
Av. civilian opportunities + 10%	*-.02	*-.04	*-.05	*-.02
Av. advancement rate + 3 months <sup>(b)</sup>	.00	*.09	-.02	-.01
Av. max. parental education + 1 yr	.00	.02	.00	-.01
Av. annual wages + \$1,000	*.04	*.08	*.08	*.14
Av. satis. w/military job + 10%	*.02	*.03	*.04	*.03
Av. satis. w/benefits + 10%	.00	*.02	*.02	.00
Av. satis. w/military lifestyle + 10%	*.01	*.02	.01	.00
Av. satis. w/relationships + 10%	*.02	*.02	*.01	.01
n	511	355	327	291

<sup>a</sup>This variable not included in model.

\*Coefficient of this variable is significantly different than zero at .10 level.

<sup>b</sup>This indicates a slower advancement rate.

By contrast, civilian employment opportunities was very important. It appears that a 10% increase in assessed civilian employment opportunities would reduce reenlistment incentives for all terms of service/gender groups. This largest impact would be a 5% reduction in reenlistment intentions for second term males. Another economic factor, increase in wages of \$1,000 would have a substantial impact on reenlistment. The largest impact would be on second term



females with an increase in reenlistment intentions of 14%.

The satisfactions with aspects of military life factor had larger and more significant effects on Active Duty reenlistment intentions than they did on prior service Reserve enlistment intentions. This is understandable, since these factors would be present if one reenlisted but would not necessarily be the same if one joined the Reserves.

#### E. Alternative Scenarios

As indicated earlier, it is inappropriate to use the results in Tables 15 and 16 to estimate the effects of multiple changes in the base case scenarios. The characteristics of the two alternative scenarios for first term male servicemembers are presented in Table 17.

These two scenarios can be used to illustrate that the partial effects, shown in Table 15, are not additive. Scenario 1 differs from the base case in that: entry age is one year less than the average entry age, the servicemember has a two-year contract, and the servicemember is Black. If the partial effects from Table 15 were added to calculate the probability of Reserve intentions of the new individual, the result would be:

Base case	.27
- 1 yr entry age	-.03
+ 2 yr contract	-.06
+ Black	<u>.37</u>
	.61

The probability of this individual joining the Reserves estimated by the full model is .591 rather than .61. Appendix H presents the equation estimate for scenarios 1 and 2. For scenario 1, not much accuracy would be lost by adding the partial effects of these four specific changes.

However, using the partial effects from Table 15 to calculate the

Table 17. Alternative scenarios and associated Reserve intention likelihoods

	<u>Scenario 1</u>	<u>Scenario 2</u>
Age	18	22
2 years college	no	yes
2 year contract	yes	no
Race	black	white
MOS	combat	combat support
Family status	single, no dependents	married, no dependents
Spouse earning \$200+/wk	no	no
Civilian opportunities	average	average
Adv. rate	average	average + 3 months
maximum parental education	average	average
Wages	average	average
Satisfaction with military job	average	average
Satisfaction with military benefits	average	average
Satisfaction with military lifestyle	average	average
Satisfaction with military relationships	average	average
Reserve intention likelihood	.591	.231

probability for scenario 2 would produce a probability which is much less accurate than that produced for scenario 1 using the partial effects. In this scenario the servicemember is three years older than the average, has two years or more of college education, is in a combat support MOS, is married with no dependents, and his advancement rate is three months longer. If the partial effects were added the probability of joining the Reserves would be:

Base case	.27
+ 3 yrs entry age	-.09
+ 2 yrs college ed.	.37
+ combat support	-.03
+ married, no dep.	-.15
+ 3 months adv. rate	-.04
	.33

Using the logistic regression equation for the same scenario yields an estimated probability of .231. In general, the partial effects tables cannot be used to accurately estimate likelihoods for individuals that differ from the base case on

multiple factors.

## V. SUMMARY AND CONCLUSIONS

This paper has analyzed two decisions of Active duty enlisted personnel: reenlistment and Reserve participation. A general turnover model with five categories of explanatory variables was used to model each decision. The variable categories were: demographic, tenure, income and economic incentives, perception of employment alternatives, and cognitive/affective orientation.

The data used to estimate the turnover models were from the Department of Defense 1985 Survey of Active Duty Officers and Enlisted Personnel. To focus on paygrades of highest interest and to keep the samples homogeneous, our study only used first and second term enlisted personnel. To shorten the window between intentions and opportunity to act on those intentions for the reenlistment and Reserve decisions we further restricted our sample to servicemembers with one year or less remaining on their current contract. Four separate models were estimated in order to capture effects of differences by tenure and gender:

- (1) males in the first enlistment term
- (2) females in the first enlistment term
- (3) males in the second enlistment term
- (4) females in the second enlistment term.

Logit models were used to estimate the two military affiliation decisions for each of the subgroups using responses to questions regarding reenlistment intentions and Reserve intentions. Note, the Reserve intention concept is not uniquely a USAR intention. Rather, the Active Duty respondents were queried as to whether they plan to join a National Guard or Reserve unit. Table 18 presents a summary of the effects of individual variables in the eight estimated models.

### A. Reserve Versus Reenlistment Intentions

For both decisions first term Blacks had more positive intentions than

Table 18. Summary of signs of significant<sup>(a)</sup> explanatory variables in logit equations for Reserve and reenlistment intentions by term of service and gender

	<u>RESERVE</u>				<u>REENLIST</u>			
	<u>1st Term</u>		<u>2nd Term</u>		<u>1st Term</u>		<u>2nd Term</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
Two year contract			N/A	N/A			N/A	N/A
Entry age								
Black	+	+			+	+		+
Hispanic						+		
Combat								
Combat support services								
Medical service								
Single with dependents								
Married, no dependents		-	+		+			
Married, with dependents		-	+		+		+	
Civilian opportunities		-	-		-	-	-	-
Advancement rate						+		
College education	+	+						
Maximum parental education			-					
Wages					+	+	+	+
Spouse earns \$200/week					-			
Satis. with military job	+	+			+	+	+	+
Satis. with military benefits		+	+			+	+	
Satis. with military lifestyle	+	+			+	+		
Satis. with military relationships				+	+	+	+	

a: Significant at the .10 or less level

first term Hispanics or Whites, with the exception of first term Hispanic females. By second term, the only significant difference in Reserve intentions or reenlistment intentions by race, was the higher reenlistment intentions by Black females. For personnel in their second term, processes of self selection and socialization to military life had removed most differences in military affiliation intentions by race.

The most important difference between the factors affecting reenlistment versus Reserve intentions was level of education. First term personnel with two or more years of college education had almost forty percent higher Reserve participation intentions than first term personnel with less than two years college education. However, for reenlistment intentions, college education was not a significant factor. This would seem to indicate that college educational benefits may be a potential source of high benefit for recruiting prior service personnel to the Reserves.

Another difference was the effect of current income. For all four subgroups current income had a significant positive effect on reenlistment intentions. However, current income did not have a significant effect on the Reserve participation intention. By comparison, perceived lower civilian opportunities had a negative effect both on Reserve intentions and reenlistment intentions.

#### **B. Male Versus Female Intentions**

Females tended to have both higher Reserve intentions and higher reenlistment intentions than their male counterparts in each term of service group, with the exception of the second term reenlistment decision. Perhaps enlisted females who have survived up to the last year of their contract judge military employment to be more equalitarian than civilian employment.

As expected, marital status affected male and female intentions differently. For first term females, being married had a strong negative impact on Reserve intentions. It had a strong positive impact for second term males. Marital status was not significant for either first term males or second term females. For the reenlistment decision, being married had a positive impact for first term males. Marital status was not significant for females, either first or second term. As most human capital models and our societal mores would indicate, the value to the family of market time for married females is different than that for married males.

### C. Future Work

The models presented in this paper assume that the decision to reenlist and the decision to join the Reserves are concurrent. In fact Active Duty military can only join the Reserves if they decide not to reenlist. Future work could develop a hierarchical multinomial model which would first estimate the probability of reenlisting; then, for those individuals who are predicted not to reenlist, estimate their probability of joining the Reserves.

The dependent variables estimated by these models are Reserve and reenlistment intentions. A request has been made to DMDC to match this survey data with the master files to determine if these servicemembers actually reenlisted, and if not, to determine if they joined the Reserves. These data could be used for modeling actual behavior rather than intentions as a function of such survey information as that in the 1985 Survey of Active Duty Officers and Enlisted Personnel.

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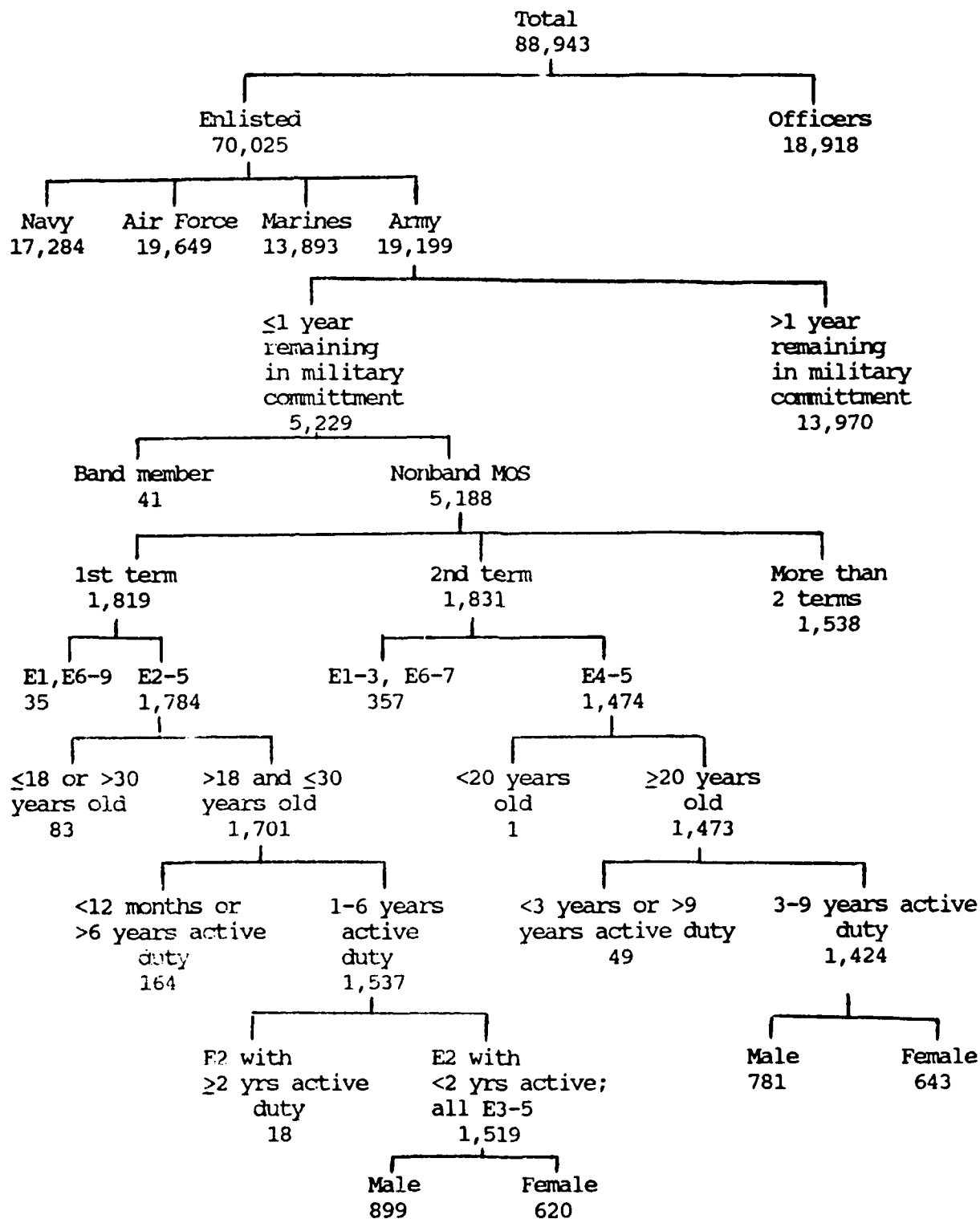
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Appendix A. Sample selection procedure first and second term by gender



Appendix B. Reserve intentions by military  
retirement intentions by term of service/gender

Table B.1. Males 1st term

Reserve Intentions	Retirement intentions			Row Total
	Don't know	No	Yes	
Definitely yes	0	84	20	104
Probably yes	9	179	40	228
Don't know	2	242	46	290
Probably no	1	92	26	119
Definitely no	5	119	17	141
Missing/not eligible	6	8	3	17
Column	23	724	152	899
Total	2.6	80.5	16.9	100.0

Table B.2. Female 1st term

Reserve Intentions	Retirement intentions			Row Total
	Don't know	No	Yes	
Definitely yes	1	94	16	111
Probably yes	1	129	24	154
Don't know	5	129	32	166
Probably no	1	81	11	93
Definitely no	2	81	6	89
Missing/not eligible	6	1	0	7
Column	16	515	89	620
Total	2.6	83.1	14.4	100.0

Table B.3. Males 2nd term

Retirement intentions				
Reserve Intentions	Don't know	No	Yes	Row Total
Definitely yes	3	55	44	102
				13.1
Probably yes	3	98	84	185
				23.7
Don't know	3	110	117	230
				29.4
Probably no	3	47	52	102
				13.1
Definitely no	1	104	40	145
				18.6
Missing/not eligible	5	7	5	17
				2.2
Column	18	421	342	781
Total	2.3	53.9	43.8	100.0

Table B.4. Females 2nd term

Retirement intentions				
Reserve Intentions	Don't know	No	Yes	Row Total
Definitely yes	1	88	28	117
				18.2
Probably yes	2	93	43	138
				21.5
Don't know	0	108	72	180
				28.0
Probably no	2	56	38	96
				14.9
Definitely no	3	75	25	103
				16.0
Missing/not eligible	4	2	3	9
				1.4
Column	12	422	209	643
Total	1.9	65.6	32.5	100.0

Appendix C. Reenlistment intentions by term of service/gender

Likelihood of reenlistment Frequency

Value Label	Males 1st Term	Females 1st Term	Males 2nd Term	Females 2nd Term
Don't know	24	12	20	17
Plan to leave	476	278	245	232
Plan to retire	8	4	19	4
Question not answered	13	7	8	3
No chance	27	21	22	8
Very slight possibility	27	13	20	13
Slight possibility	18	11	18	14
Some possibility	33	13	31	25
Fair possibility	13	17	20	20
Fairly good possibility	23	16	31	13
Good possibility	33	28	47	40
Probable	22	16	22	32
Very probable	24	27	29	22
Almost sure	61	38	74	58
Certain	<u>97</u>	<u>119</u>	<u>175</u>	<u>142</u>
Total	899	620	781	643

# Appendix D. Bivariate analysis of candidate explanatory variables

Table D.1. Characteristics of first term males by  
Reserve intentions (mean/percent)  
(concluded on next page)

	N	Mean		Significance level
		<u>Join Reserves</u> no	yes	
Number of dependents	208	0.4	0.6	.10
Age	208	22.2	22.0	.53
Age at entry into military	208	19.1	18.8	.32
Current education	207	12.4	12.2	.36
Mothers education	162	12.6	11.9	.11
Fathers education	165	12.9	12.2	.18
Maximum parental education	171	13.7	12.8	.10
Total months of Active Duty	208	32.4	33.9	.35
Advancement rate	208	8.4	8.5	.97
Basic annual wages	208	\$9,072	\$9,353	.05
Spouses annual wages	57	\$3,428	\$3,782	.87
Civilian opportunities	198	8.0	7.4	.10
Satisfaction-personal freedom	201	1.9	2.7	.01
- friends	202	3.5	3.7	.16
- coworkers	201	3.1	3.3	.17
- stability	200	2.7	3.2	.01
- pay	200	2.4	3.0	.01
- family environment	198	2.5	2.8	.03
- moves	198	2.8	3.1	.04
- retirement	198	2.9	3.2	.04
- serve country	198	3.4	3.9	.01
- current job	200	2.2	3.2	.01
- promotions	201	2.3	2.5	.24
- training	201	2.4	2.7	.04
- security	198	3.3	3.5	.06
- work environment	199	2.3	2.9	.01
- VEAP	200	3.3	3.7	.03
- medical	202	3.1	3.6	.01
- dental	199	3.3	3.7	.03
- commissary	201	3.1	3.8	.01
<u>Percent</u>				
Race				
- White	145	69.0	31.0	
- Black	29	31.0	69.0	
- Hispanic	23	39.1	60.9	
- Other	11	54.5	45.5	.01

Table D.1. Characteristics of first term males by  
Reserve intentions (mean/percent)  
(concluded)

		N	Percent		Significance level
			Join	Reserves	
			no	yes	
Married	- No	146	61.0	39.0	.65
	- Yes	62	56.5	43.5	
Family status	- Single, no dependents	130	63.1	36.9	.06
	- Single, with dependents	16	43.8	56.3	
	- Married, no dependents	18	77.8	22.2	
	- Married, with dependents	44	47.7	52.3	
Military Occupation					
	- Combat	67	58.2	41.8	.34
	- Combat support	93	59.1	40.9	
	- Combat support services	30	50.0	50.0	
	- Medical services	11	81.8	18.2	
College					
	- Less than 14 years education	182	59.9	40.1	.88
	- 14 or more years education	25	56.0	44.0	
Spouse Income					
	- Single; non working spouse; spouse earns less than \$200 /week	189	59.8	40.2	.99
	- Spouse earns \$200 or more/week	10	60.0	40.0	
Paygrade					
	- E2	5	100.0	-0-	.07
	- E3	31	74.2	25.8	
	- E4	156	55.8	44.2	
	- E5	16	56.3	43.8	



Table D.2. Characteristics of first term females by  
Reserve intentions (mean/percent)  
(concluded on next page)

	N	Mean		Significance level
		<u>Join Reserves</u> No	Yes	
Number of dependents	178	.5	.5	.69
Age	178	22.7	23.3	.12
Age at entry into military	178	19.2	19.5	.35
Current education	178	12.6	12.8	.34
Mothers education	138	12.4	12.5	.80
Fathers education	123	12.9	12.2	.23
Maximum parental education	146	13.2	13.2	.93
Total months of Active Duty	178	37.2	40.1	.15
Advancement rate	178	9.0	9.5	.23
Basic annual wages	178	\$9,506	\$9,690	.22
Spouses annual wages	77	\$2,997	\$2,492	.76
Civilian opportunities	171	7.1	6.6	.21
Satisfaction - personal freedom	175	2.6	2.9	.11
- friends	176	3.6	3.6	.71
- coworkers	175	3.2	3.3	.32
- stability	173	2.9	3.3	.02
- pay	173	2.8	3.0	.32
- family environment	171	3.0	3.1	.26
- moves	174	3.0	3.2	.05
- retirement	173	3.0	3.1	.37
- serve country	171	3.5	3.9	.01
- current job	171	2.9	3.0	.68
- promotions	173	2.4	2.6	.18
- training	175	2.8	3.1	.07
- security	175	3.3	3.6	.07
- work environment	173	2.7	3.0	.06
- VEAP	174	3.5	3.8	.03
- medical	175	3.0	3.4	.02
- dental	174	3.5	3.8	.07
- commissary	175	3.4	3.6	.15
<u>Percent</u>				
Race				
- White	101	56.4	43.6	
- Black	59	32.2	67.8	
- Hispanic	9	33.3	66.7	
- Other	9	44.4	55.6	.02
Married				
- No	101	41.6	58.4	
- Yes	77	53.2	46.8	.16

Table D.2. Characteristics of first term females by  
Reserve intentions (mean/percent)  
(concluded)

	N	Percent <u>Join Reserves</u>		Significance level
		No	Yes	
Family status - Single, no dependents	71	39.4	60.6	
- Single, with dependents	30	46.7	53.3	
- Married, no dependents	39	56.4	43.6	
- Married, with dependents	38	50.0	50.0	.37
Military occupation - Combat	6	83.3	16.7	
- Combat support	51	49.0	51.0	
- Combat support service	85	42.4	57.6	
- Medical services	33	48.5	51.5	.26
College - Less than 14 years education	144	48.6	51.4	
- 14 or more years education	34	38.2	61.8	.37
Spouse Income - Single; spouse earns less than \$200/week	160	45.6	54.4	
- Spouse earns \$200 or more/week	8	75.0	25.0	.21
Paygrade - E2	0	—	—	
- E3	9	66.7	33.3	
- E4	135	46.7	53.3	
- E5	34	41.2	58.8	.39

Table D.3. Characteristics of second term males by  
Reserve intentions (mean/percent)  
(concluded on next page)

	N	Mean		Significance level
		Join Reserves No	Yes	
Number of dependents	163	1.2	1.3	.74
Age	163	26.3	26.4	.88
Age at entry into military	161	19.6	19.4	.76
Current education	162	12.2	12.0	.18
Mothers education	110	12.0	11.0	.05
Fathers education	100	12.1	11.1	.14
Maximum parental education	115	12.7	11.7	.06
Total months of Active Duty	163	76.5	79.7	.17
Advancement rate	163	16.8	17.1	.57
Basic annual wages	163	\$11,297	\$11,476	.18
Spouses annual wages	87	\$4,391	\$2,967	.44
Civilian opportunities	150	7.9	6.5	.01
Satisfaction - personal freedom	156	2.3	3.1	.01
- friends	155	3.3	3.8	.01
- coworkers	153	3.0	3.5	.01
- stability	155	2.7	2.9	.28
- pay	154	2.3	3.0	.01
- family environment	149	2.8	3.2	.02
- moves	153	2.7	3.1	.05
- retirement	149	2.8	3.0	.20
- serve country	154	3.5	3.9	.03
- current job	155	2.5	3.2	.01
- promotions	153	2.2	2.9	.01
- training	154	2.4	3.1	.01
- security	151	2.9	3.5	.01
- work environment	154	2.6	3.0	.05
- VEAP	149	2.9	3.5	.01
- medical	156	3.0	3.6	.01
- dental	155	3.3	3.8	.01
- commissary	154	3.3	3.8	.01
<u>Percent</u>				
Race - White	72	79.2	20.8	
- Black	66	51.5	48.5	
- Hispanic	16	50.0	50.0	
- Other	9	66.7	33.3	.01
Married - No	68	72.1	27.9	
- Yes	95	58.9	41.1	.12

Table D.3. Characteristics of second term males by  
Reserve intentions (mean/percent)  
(concluded)

	N	Percent <u>Join Reserves</u>		Significance level
		No	Yes	
Family status- single, no dependents	52	69.2	30.8	
- single, with dependents	16	81.3	18.8	
- married, no dependents	16	50.0	50.0	
- married, with dependents	79	60.8	39.2	.22
Military occupation - combat	43	60.5	39.5	
- combat support	72	65.3	34.7	
- combat support services	34	70.6	29.4	
- medical services	8	50.0	50.0	.66
College - Less than 14 years education	153	62.7	37.3	
- 14 or more years education	9	88.9	11.1	.22
Spouse Income - Single, spouse earns less than \$200/week	130	65.4	34.6	
- Spouse earns \$200/week	13	61.5	38.5	.99
Paygrade - E4	62	71.0	29.0	
- E5	101	60.4	39.6	.23

Table D.4. Characteristics of second term females by  
Reserve intentions (mean/percent)  
(concluded on next page)

	N	Mean		Significance level
		<u>Join Reserves</u> No	Yes	
Number of dependents	167	0.8	0.7	.44
Age	167	26.8	27.2	.56
Age at entry into military	165	20.2	20.5	.60
Current education	167	12.5	12.7	.45
Mothers education	125	12.4	11.7	.14
Fathers education	110	12.2	12.0	.74
Maximum parental education	131	12.9	12.6	.50
Total months of Active Duty	167	75.2	75.6	.82
Advancement rate	167	16.4	16.0	.33
Basic annual wages	167	\$11,367	\$11,452	.49
Spouses annual wages	86	\$ 1,551	\$ 2,226	.44
Civilian opportunities	153	7.2	6.7	.29
Satisfaction - personal freedom	161	2.8	3.2	.02
- friends	161	3.4	3.7	.04
- coworkers	161	3.1	3.3	.41
- stability	160	2.9	3.3	.07
- pay	159	2.5	3.0	.01
- family environment	159	3.0	3.3	.05
- moves	161	3.0	2.9	.62
- retirement	159	2.9	2.7	.26
- serve country	160	3.4	3.9	.01
- current job	161	2.8	3.1	.18
- promotions	160	2.0	2.2	.17
- training	160	2.8	2.9	.66
- security	158	3.0	3.3	.11
- work environment	160	2.6	3.0	.03
- VEAP	158	3.2	3.2	.76
- medical	159	3.0	3.2	.42
- dental	161	3.6	3.5	.72
- commissary	161	3.2	3.4	.20
<u>Percent</u>				
Race	- White	64	50.0	50.0
	- Black	82	46.3	53.7
	- Hispanic	13	30.8	69.2
	- Other	8	50.0	50.0
				.65
Married	- No	76	43.4	56.6
	- Yes	91	49.5	50.5
				.53

Table D.4. Characteristics of second term females by  
Reserve intentions (mean/percent)  
(concluded)

	N	Percent <u>Join Reserves</u>		Significance level
		No	Yes	
Family status - Single, no dependents	45	40.0	60.0	.39
- Single, with dependents	31	48.4	51.6	
- Married, no dependents	41	41.5	58.5	
- Married, with dependents	50	56.0	44.0	
Military occupation - Combat	3	66.7	33.3	.68
- Combat support	47	48.9	51.1	
- Combat support services	79	46.8	53.2	
- medical services	34	38.2	61.8	
College - less than 14 years education	130	45.4	54.6	.65
- 14 or more years education	37	51.4	48.6	
Spouse Income - Single, spouse earns less than \$200/week	139	47.5	52.5	.93
- Spouse earns \$200 or more/week	12	41.7	58.3	
Paygrade - E4	53	54.7	45.3	.21
- E5	114	43.0	57.0	

Table D.5. Characteristics of first term males  
by reenlistment intentions (mean/percent)  
(concluded on next page)

	N	Mean REENLIST		Significance level
		no	yes	
Number of dependents	712	0.4	0.7	.01
Age	712	22.1	22.7	.01
Age at entry into military	710	18.9	19.1	.14
Current education	710	12.3	12.3	.99
Mothers education	566	12.4	12.2	.33
Fathers education	548	12.5	12.1	.20
Maximum parental education	595	13.2	13.0	.55
Total months of Active Duty	712	32.6	37.5	.01
Advancement rate	712	8.3	9.0	.01
Basic annual wages	712	\$9,161	\$9,551	.01
Spouses annual wages	236	\$2,909	\$1,913	.12
Civilian opportunities	679	7.8	6.4	.01
Satisfaction - personal freedom	700	2.3	3.0	.01
- friends	700	3.7	3.8	.05
- coworkers	696	3.2	3.5	.01
- stability	698	3.0	3.2	.01
- pay	696	2.7	3.1	.01
- family environment	695	2.8	3.2	.01
- moves	700	3.0	3.2	.01
- retirement	692	3.0	3.2	.02
- serve country	696	3.7	4.1	.01
- current job	699	2.7	3.4	.01
- promotions	691	2.5	2.9	.01
- training	700	2.5	3.1	.01
- security	694	3.4	3.7	.01
- work environment	696	2.7	3.2	.01
- VEAP	695	3.5	3.5	.58
- medical	700	3.3	3.6	.02
- dental	698	3.5	3.6	.13
- commissary	699	3.4	3.6	.03
<u>Percent</u>				
Race - White	497	79.5	20.5	
- Black	126	56.3	43.7	
- Hispanic	61	67.2	32.8	
- Other	28	82.1	17.9	.01
Married - No	469	81.4	18.6	
- Yes	243	60.9	39.1	.01

Table D.5. Characteristics of first term males  
by reenlistment intentions (mean/percent)  
(concluded)

	N	Percent REENLIST		Significance level
		No	Yes	
Family Status - Single, no dependents	421	81.9	18.1	.01
- Single, with dependents	48	77.1	22.9	
- Married, no dependents	98	63.3	36.7	
- Married, with dependents	145	59.3	40.7	
Military occupation - Combat	232	75.9	24.1	.07
- Combat support	311	76.2	23.8	
- Combat support services	122	73.8	26.2	
- Medical services	34	55.9	44.1	
College - Less than 14 years education	637	74.4	25.6	.99
- 14 or more years education	73	74.0	26.0	
Spouse Income - Single, non working spouse; spouse earns less than \$200/week	661	75.3	24.7	.61
- Spouse earns \$200 or more/week	22	68.2	31.8	
Paygrade - E2	9	100.0	.0	.01
- E3	101	88.1	11.9	
- E4	506	74.5	25.5	
- E5	96	57.3	42.7	



Table D.6. Characteristics of first term females by  
reenlistment intention (mean/percent)  
(concluded on next page)

	N	Mean REENLIST		Significance level
		no	yes	
Number of dependents	496	0.4	0.6	.01
Age	496	22.6	23.6	.01
Age at entry into military	496	19.1	19.5	.04
Current education	496	12.6	12.7	.38
Mothers education	401	12.2	12.2	.97
Fathers education	358	12.4	12.0	.20
Maximum parental education	416	13.1	12.9	.65
Total months of Active Duty	496	35.8	43.4	.01
Advancement rate	496	8.8	10.1	.01
Basic annual wages	496	\$9,399	\$9,856	.01
Spouses annual wages	232	\$2,284	\$1,276	.23
Civilian opportunities	473	7.1	6.1	.01
Satisfaction - personal freedom	490	2.5	3.2	.01
- friends	491	3.5	3.6	.29
- coworkers	484	3.2	3.5	.01
- stability	488	3.1	3.3	.04
- pay	487	2.9	3.1	.01
- family environment	484	3.0	3.3	.01
- moves	486	3.0	3.2	.01
- retirement	483	3.0	3.2	.01
- serve country	483	3.6	4.0	.01
- current job	484	3.0	3.2	.06
- promotions	486	2.5	2.6	.23
- training	488	2.9	3.2	.01
- security	483	3.4	3.7	.01
- work environment	485	2.7	3.1	.01
- VEAP	488	3.5	3.8	.01
- medical	486	3.1	3.6	.01
- dental	488	3.5	3.8	.01
- commissary	490	3.4	3.7	.01
<u>Percent</u>				
Race				
- White	276	73.2	26.8	
- Black	166	48.8	51.2	
- Hispanic	37	51.4	48.6	
- Other	17	58.8	41.2	.01
Married				
- No	259	68.0	32.0	
- Yes	237	57.4	42.6	.02

Table D.6. Characteristics of first term females by  
reenlistment intention (mean/percent)  
(concluded)

	N	Percent REENLIST		Significance level
		No	Yes	
Family status - single, no dependents	196	71.4	28.6	.01
- single, with dependents	63	57.1	42.9	
- married, no dependents	124	63.7	36.3	
- married, with dependents	113	50.4	49.6	
Military occupation - combat	16	75.0	25.0	.07
- combat support	138	71.0	29.0	
- combat support services	251	59.0	41.0	
- medical services	84	59.5	40.5	
College - Less than 14 years education	410	63.7	36.3	.52
- 14 or more years education	86	59.3	40.7	
Spouse Income - Single, non working spouse; spouse earns less than \$200/week	456	63.8	36.2	.63
- Spouse earns \$200 or more/week	15	73.3	26.7	
Paygrade - E2	1	100.0	-0-	.01
- E3	23	91.3	8.7	
- E4	383	65.8	34.2	
- E5	89	42.7	57.3	

Table D.7. Characteristics of second term males by  
reenlistment intentions (mean/percent)  
(concluded on next page)

	N	Mean REENLIST		Significance level
		No	Yes	
Number of dependents	565	1.3	1.4	.11
Age	565	26.1	26.3	.56
Age at entry into military	562	19.3	19.2	.51
Current education	562	12.3	12.3	.58
Mothers education	421	11.9	11.7	.42
Fathers education	384	11.9	11.7	.43
Maximum parental education	440	12.5	12.4	.65
Total months of Active Duty	565	77.2	80.5	.01
Advancement rate	565	16.9	16.9	.99
Basic annual wages	564	\$11,385	\$11,711	.01
Spouses annual wages	353	\$3,682	\$2,901	.22
Civilian opportunities	527	7.4	6.4	.01
Satisfaction - personal freedom	551	2.5	3.2	.01
- friends	549	3.5	3.7	.01
- coworkers	546	3.1	3.5	.01
- stability	547	2.8	3.1	.01
- pay	545	2.6	2.9	.01
- family environment	539	2.9	3.2	.01
- moves	547	2.8	3.0	.03
- retirement	544	2.9	3.1	.01
- serve country	548	3.6	4.2	.01
- current job	543	2.7	3.4	.01
- promotions	544	2.3	2.5	.03
- training	546	2.6	3.1	.01
- security	547	3.1	3.6	.01
- work environment	547	2.8	3.1	.01
- VEAP	544	3.0	3.3	.01
- medical	548	3.1	3.5	.01
- dental	550	3.4	3.6	.09
- commissary	549	3.4	3.6	.02
<u>Percent</u>				
Race				
- White	255	52.9	47.1	
- Black	216	47.7	52.3	
- Hispanic	70	51.4	48.6	
- Other	24	54.2	45.8	.70
Married				
- No	184	62.0	38.0	
- Yes	381	45.4	54.6	.01

Table D.7. Characteristics of second term males by  
reenlistment intentions (mean/percent)  
(concluded)

	N	Percent REENLIST		Significance level
		No	Yes	
Family Status - single, no dependents	135	63.7	36.3	.01
- single, with dependents	49	57.1	42.9	
- married, no dependents	54	50.0	50.0	
- married, with dependents	327	44.6	55.4	
Military occupation - combat	123	58.5	41.5	.02
- combat support	260	51.5	48.5	
- combat support services	117	48.7	51.3	
- medical services	54	33.3	66.7	
College - less than 14 years education	511	50.1	49.9	.44
- 14 or more years education	51	56.9	43.1	
Spouse Income - single, spouse earns less than \$200/week	450	51.1	48.9	.25
- spouse earns \$200 or more/week	55	41.8	58.2	
Paygrade - E4	175	65.7	34.3	.01
- E5	390	44.1	55.9	

Table D.8. Characteristics of second term females by  
reenlistment intentions (mean/percent)  
(concluded on next page)

	N	Mean REENLIST		Significance level
		No	Yes	
Number of dependents	475	0.8	0.8	.42
Age	475	26.6	26.5	.85
Age at entry into military	473	20.0	19.7	.40
Current education	475	12.7	12.6	.59
Mothers education	365	12.3	11.7	.04
Fathers education	312	11.8	11.4	.24
Maximum parental education	379	12.8	12.3	.14
Total months of Active Duty	475	74.3	76.3	.06
Advancement rate	475	16.1	15.9	.51
Basic annual wages	475	\$11,309	\$11,529	.01
Spouses annual wages	254	\$ 2,147	\$ 3,180	.28
Civilian opportunities	437	6.7	6.1	.03
Satisfaction - personal freedom	469	2.9	3.3	.01
- friends	470	3.7	3.7	.80
- coworkers	465	3.3	3.4	.14
- stability	466	3.2	3.2	.45
- pay	462	2.8	2.9	.51
- family environment	460	3.2	3.2	.96
- moves	470	3.1	3.2	.25
- retirement	467	2.8	3.0	.13
- serve country	468	3.7	4.0	.01
- current job	469	3.0	3.3	.01
- promotions	467	2.2	2.2	.69
- training	465	2.9	3.2	.01
- security	465	3.3	3.6	.01
- work environment	465	2.8	3.2	.01
- VEAP	464	3.2	3.4	.02
- medical	468	3.2	3.4	.13
- dental	468	3.5	3.6	.43
- commissary	469	3.4	3.4	.65
<u>Percent</u>				
Race - White	188	61.2	38.8	
- Black	231	45.5	54.5	
- Hispanic	37	51.4	48.6	
- Other	19	73.7	26.3	.01
Married - No	215	53.0	47.0	
- Yes	260	53.5	46.5	.99

Table D.8. Characteristics of second term females by  
reenlistment intentions (mean/percent)  
(concluded)

	N	Percent REENLIST		Significance level
		No	Yes	
Family status - single, no dependents	127	57.5	42.5	.48
- single, with dependents	88	46.6	53.4	
- married, no dependents	104	53.8	46.2	
- married, with dependents	156	53.2	46.8	
Military occupation - combat	6	66.7	33.3	.55
- combat support	137	54.0	46.0	
- combat support services	232	50.0	50.0	
- medical services	94	57.4	42.6	
College - less than 14 years education	384	52.6	47.4	.64
- 14 or more years education	91	56.0	44.0	
Spouse Income - single, spouse earns less than \$220/week	399	52.4	47.6	.43
- spouse earns \$200 or more/week	38	60.5	39.5	
Paygrade - E4	130	67.7	32.3	.01
- E5	345	47.8	52.2	

Appendix E. Logit models for Reserve intentions  
and reenlistment intentions

Table E.1 Reserve intentions logit results,  
first term males

Actual Reserve Intention: 37.9%

<u>Variable</u>	<u>Full Model</u>		<u>Single Variable</u>		<u>% Correctly Classified</u>
	<u>Beta</u>	<u>Sign. Level</u>	<u>Beta</u>	<u>Sign. Level</u>	
Intercept	0.25	.95			
Contract	-0.36	.64	-0.89	.04	62.1
Entry Age	-0.15	.24	-0.07	.43	62.1
Black	1.57	.08	1.45	.02	65.7
Hispanic	0.45	.63	0.77	.27	62.9
Combat support	-0.14	.79	0.20	.57	62.1
Combat support service	0.28	.74	0.16	.76	62.1
Medical services	-9.10	.65	-7.88	.74	62.1
Single with dependents	0.58	.52	0.77	.27	62.9
Married no dependents	-0.96	.35	-0.80	.33	62.1
Married with dependents	1.03	.12	0.81	.07	63.6
Civilian opportunities	0.02	.84	-0.06	.38	62.1
Advancement rate	-0.07	.61	0.05	.49	62.1
College education	1.56	.06	0.21	.68	62.1
Max. parent education	-0.03	.66	-0.11	.05	65.0
Wages	0.36	.23	0.25	.14	63.6
Spouse earns \$200/Wk	0.71	.61	0.52	.53	62.1
Military job	0.74	.01	0.82	.01	70.0
Benefits	0.14	.57	0.25	.14	61.4
Military life style	0.54	.05	0.52	.01	61.4
Relationships	0.27	.29	0.28	.12	61.4
N=140					
% correctly classified	78.6				

Table E.2 Reserve intentions logit results,  
first term females

Actual Reserve Intentions: 53.7%

<u>Variable</u>	<u>Full Model</u>		<u>Single Variable</u>		<u>% Correctly Classified</u>
	<u>Beta</u>	<u>Sign. Level</u>	<u>Beta</u>	<u>Sign. Level</u>	
Intercept	0.32	.93			
Contract	0.73	.52	0.57	.52	53.7
Entry Age	-0.05	.69	0.01	.86	53.7
Black	1.94	.01	1.37	.01	62.0
Hispanic	0.97	.34	0.57	.52	53.7
Combat support	0.57	.62	-0.53	.18	57.0
Combat support service	0.40	.73	0.20	.59	53.7
Medical services	0.91	.46	0.59	.22	53.7
Single with dependents	-0.80	.32	0.09	.87	53.7
Married no dependents	-1.20	.07	-0.57	.19	57.0
Married with dependents	-1.21	.07	-0.19	.67	53.7
Civilian opportunities	-0.18	.05	-0.09	.21	60.3
Advancement rate	0.04	.74	0.05	.42	52.1
College education	1.79	.01	0.59	.22	53.7
Max. parent education	-0.11	.22	-0.06	.38	55.4
Wages	0.23	.42	0.22	.24	53.7
Spouse earns \$200/Wk	0.11	.92	-1.13	.19	56.2
Military job	0.46	.08	0.09	.60	54.5
Benefits	0.66	.02	0.40	.04	53.7
Military life style	0.55	.04	0.24	.17	56.2
Relationships	-0.03	.91	0.10	.56	54.5
N=121					
% correctly classified	72.7				



Table E.3 Reserve intentions logit results,  
second term males

Actual Reserve Intentions: 27.0%

<u>Variable</u>	<u>Full Model</u>		<u>Single Variable</u>		<u>% Correctly Classified</u>
	<u>Beta</u>	<u>Sign. Level</u>	<u>Beta</u>	<u>Sign. Level</u>	
Intercept	11.11	.18			
Entry Age	0.07	.66	0.01	.92	73.0
Black	-0.86	.34	0.16	.77	73.0
Hispanic	0.03	.98	-0.42	.72	73.0
Combat support	0.46	.62	0.13	.81	73.0
Combat support service	0.70	.61	-0.37	.60	73.0
Medical services	2.85	.12	1.06	.31	73.0
Married no dependents	3.12	.02	0.34	.65	73.0
Married with dependents	1.87	.08	0.94	.08	73.0
Civilian opportunities	-0.60	.01	-0.22	.04	73.0
Advancement rate	0.10	.49	0.06	.49	73.0
College education	0.91	.69	-0.11	.93	73.0
Max. parent education	-0.36	.04	-0.19	.08	74.3
Wages	-0.67	.20	0.35	.27	73.0
Spouse earns \$200/Wk	0.94	.62	-0.11	.93	73.0
Military job	0.67	.14	0.31	.22	73.0
Benefits	1.79	.01	0.70	.02	71.6
Military life style	-0.42	.32	-0.20	.46	73.0
Relationships	0.03	.93	0.01	.96	73.0
N=74					
% correctly classified	86.5				

Table E.4 Reserve intentions logit results,  
second term females

Actual Reserve Intentions: 55.0%

<u>Variable</u>	<u>Full Model</u>		<u>Single Variable</u>		<u>% Correctly Classified</u>
	<u>Beta</u>	<u>Sign. Level</u>	<u>Beta</u>	<u>Sign. Level</u>	
Intercept	0.38	.92			
Entry Age	0.07	.42	0.01	.91	55.0
Black	-0.44	.38	-0.27	.50	55.0
Hispanic	1.06	.31	0.77	.37	55.0
Combat support service	0.61	.29	-0.03	.95	55.0
Medical services	0.24	.70	0.15	.75	55.0
Single with dependents	0.13	.85	0.03	.96	55.0
Married no dependents	-0.33	.60	0.00	.99	55.0
Married with dependent	-0.73	.25	-0.29	.51	55.0
Civilian opportunities	-0.11	.22	-0.05	.47	55.0
Advancement rate	-0.18	.15	-0.12	.17	59.0
College education	-0.20	.74	0.03	.95	55.0
Max. parent education	-0.04	.62	-0.02	.75	55.0
Wages	0.24	.42	0.11	.65	55.0
Spouse earns \$200/Wk	1.10	.27	0.97	.25	55.0
Military job	0.14	.55	0.21	.26	58.0
Benefits	0.11	.63	0.05	.78	55.0
Military life style	0.15	.50	0.05	.77	55.0
Relationships	0.41	.06	0.30	.10	57.0

N=100

% correctly classified 60.0

Table E.5 Reenlistment intentions logit results,  
first term males

Actual Reserve Intentions: 23.9%

<u>Variable</u>	<u>Full Model</u>		<u>Single Variable</u>		<u>% Correctly Classified</u>
	<u>Beta</u>	<u>Sign. Level</u>	<u>Beta</u>	<u>Sign. Level</u>	
Intercept	-3.42	.07			
Contract	-0.54	.23	-1.34	.01	76.1
Entry Age	-0.02	.70	0.04	.37	76.1
Black	1.49	.01	1.17	.01	76.1
Hispanic	0.51	.30	0.50	.19	76.1
Combat support	-0.37	.21	-0.29	.17	76.1
Combat support service	0.15	.69	0.24	.37	76.1
Medical services	0.47	.41	0.77	.05	76.1
Single with dependents	-0.78	.19	-0.48	.30	76.1
Married no dependents	1.30	.01	0.51	.08	76.1
Married with dependents	1.14	.01	1.17	.01	76.1
Civilian opportunities	-0.17	.01	-0.16	.01	76.1
Advancement rate	0.01	.86	0.11	.01	76.3
College education	0.35	.44	0.19	.53	76.1
Max. parent education	0.04	.39	-0.04	.32	76.1
Wages	0.29	.05	0.40	.01	75.5
Spouse earns \$200/Wk	-1.18	.10	-0.02	.97	76.1
Military job	0.68	.01	0.64	.01	75.7
Benefits	-0.03	.80	-0.03	.79	76.1
Military life style	0.42	.01	0.46	.01	76.1
Relationships	0.45	.01	0.37	.01	76.1
N=511					
% correctly classified	81.2				

Table E.6 Reenlistment intentions logit results,  
first term females

Actual Reserve Intentions: 36.1%

<u>Variable</u>	<u>Full Model</u>		<u>Single Variable</u>		<u>% Correctly Classified</u>
	<u>Beta</u>	<u>Sign. Level</u>	<u>Beta</u>	<u>Sign. Level</u>	
Intercept	-8.16	.01			
Contract	-0.30	.65	-1.10	.05	63.9
Entry Age	0.10	.12	0.08	.08	63.7
Black	1.00	.01	1.06	.01	66.2
Hispanic	0.93	.06	0.71	.10	64.2
Combat support	0.37	.65	-0.57	.03	63.9
Combat support service	1.04	.20	0.29	.19	63.9
Medical services	0.81	.33	0.38	.17	63.9
Single with dependents	0.31	.47	0.33	.33	63.9
Married no dependents	0.42	.22	0.00	.98	63.9
Married with dependents	0.42	.22	0.63	.01	63.9
Civilian opportunities	-0.15	.01	-0.13	.01	65.1
Advancement rate	0.12	.04	0.18	.01	67.0
College education	0.15	.69	0.21	.44	63.9
Max. parent education	0.06	.25	-0.02	.57	63.9
Wages	0.33	.06	0.54	.01	65.9
Spouse earns \$200/Wk	0.36	.62	-0.02	.98	63.9
Military job	0.50	.01	0.26	.03	63.7
Benefits	0.26	.06	0.23	.04	63.9
Military life style	0.37	.01	0.25	.04	63.1
Relationships	0.25	.06	0.30	.01	64.2

N=355

% correctly classified 75.2

Table E.7 Reenlistment intentions logit results,  
second term males

Actual Reserve Intentions: 51.1%

<u>Variable</u>	<u>Full Model</u>		<u>Single Variable</u>		<u>% Correctly Classified</u>
	<u>Beta</u>	<u>Sign. Level</u>	<u>Beta</u>	<u>Sign. Level</u>	
Intercept	-2.08	.38			
Entry Age	-0.03	.59	-0.02	.63	52.6
Black	0.09	.75	0.21	.37	52.0
Hispanic	0.08	.84	0.19	.58	51.1
Combat support	-0.06	.85	-0.21	.34	52.6
Combat support service	0.16	.70	0.03	.92	51.1
Medical services	0.61	.23	0.52	.18	51.4
Single with dependents	0.64	.24	-0.21	.60	51.7
Married no dependents	0.63	.18	0.02	.96	51.1
Married with dependents	0.79	.02	0.66	.01	58.1
Civilian opportunities	-0.23	.01	-0.20	.01	61.8
Advancement rate	-0.03	.55	-0.03	.41	50.8
College education	-0.15	.74	-0.28	.41	52.3
Max. parent education	0.00	.92	-0.05	.23	53.8
Wages	0.35	.03	0.39	.01	57.2
Spouse earns \$200/Wk	0.18	.65	0.31	.33	51.1
Military job	0.58	.01	0.51	.01	61.2
Benefits	0.27	.03	0.22	.04	52.6
Military life style	0.15	.21	0.11	.28	54.7
Relationships	0.22	.08	0.23	.04	55.4
N=327					
% correctly classified	70.0				

Table E.8 Reenlistment intentions logit results,  
second term females

Actual Reserve Intentions: 48.8%

<u>Variable</u>	<u>Full Model</u>		<u>Single Variable</u>		<u>% Correctly Classified</u>
	<u>Beta</u>	<u>Sign. Level</u>	<u>Beta</u>	<u>Sign. Level</u>	
Intercept	-5.08	.08			
Entry Age	-0.03	.53	-0.04	.26	51.9
Black	0.73	.01	0.65	.01	58.1
Hispanic	0.13	.81	-0.05	.91	51.2
Combat support	0.25	.84	0.07	.77	51.2
Combat support service	0.30	.82	0.34	.15	54.3
Medical services	-0.31	.81	-0.57	.05	54.0
Single with dependents	0.47	.24	0.67	.03	56.0
Married no dependents	-0.25	.52	-0.37	.21	52.2
Married with dependents	-0.03	.92	0.01	.98	51.2
Civilian opportunities	-0.10	.05	-0.09	.04	56.4
Advancement rate	-0.01	.81	0.01	.88	51.9
College education	-0.33	.33	-0.62	.03	54.6
Max. parent education	-0.02	.62	-0.05	.24	52.6
Wages	0.55	.01	0.38	.03	55.0
Spouse earns \$200/Wk	-0.30	.53	0.29	.49	51.2
Military job	0.49	.01	0.43	.01	57.4
Benefits	0.03	.85	0.02	.88	51.2
Military life style	0.03	.78	-0.05	.65	48.8
Relationships	0.13	.33	0.05	.65	54.0

N=291

% correctly classified 65.6

Appendix F. Actual versus predicted Reserve intentions  
and reenlistment intentions

Table F.1. Actual Reserve intentions versus predicted  
Reserve intentions (by the full model)  
by gender and term of services

<u>Term</u>	<u>Gender</u>	% Correctly <u>Predicted</u>	<u>Actual</u> <u>Intentions</u>	<u>Predicted Intentions</u>	
				<u>No</u>	<u>Yes</u>
First	Males	78.6	No	75	12
			n=87	(53.6)	(8.6)
			Yes	18	35
			n=53	(12.9)	(25.0)
First	Females	72.7	No	40	16
			n=56	(33.1)	(13.2)
			Yes	17	48
			n=65	(14.0)	(39.7)
Second	Males	86.5	No	52	2
			n=54	(70.3)	(2.7)
			Yes	8	12
			n=20	(10.8)	(16.2)
Second	Females	60.0	No	23	22
			n=45	(23.0)	(22.0)
			Yes	18	37
			n=55	(18.0)	(37.0)

Table F.2. Actual reenlistment intentions versus predicted  
reenlistment intentions (by the full model)  
by gender and term of services

<u>Term</u>	<u>Gender</u>	% Correctly <u>Predicted</u>	<u>Actual</u> <u>Intentions</u>	<u>Predicted Intentions</u>	
				<u>No</u>	<u>Yes</u>
First	Males	81.2	No	370	19
			n=389	(72.4)	(3.7)
			Yes	77	45
			n=122	(15.1)	(8.8)
First	Females	75.2	No	201	26
			n=227	(56.6)	(7.3)
			Yes	62	66
			n=128	(17.5)	(18.6)
Second	Males	70.0	No	106	51
			n=160	(32.4)	(15.6)
			Yes	44	123
			n=167	(13.5)	(37.6)
Second	Females	68.5	No	100	47
			n=149	(34.4)	(16.2)
			Yes	53	89
			n=142	(18.2)	(30.6)



## Appendix G

This Appendix demonstrates how to use the estimated logistic regression models to calculate the base case probabilities and partial effects of changes in individual variables on probabilities of joining the Reserves or reenlisting. In these models if an individual intends to join the Reserves (or reenlist in the reenlistment models), the dependent variable (Y) is coded as Y=1.

The probability that Y=1 for the binary logistic regression model, P, is given by the expression

$$P = \text{Prob}(Y=1 | \text{individual } i) = 1 / (1 + \text{EXP}(-A - X_i B)),$$

where A is the intercept parameter,

$B = (B_1, \dots, B_m)$  denote the vector of m estimated regression parameters, and,

$X_i$  is the vector of m explanatory variables for the ith individual.

Table G presents the estimated parameters, A and B, and the vector of independent variables used to calculate the base case for the probability of joining the Reserves for first term males. As shown in Table 14, the vector of explanatory variables used for the base case calculation contains the mean values for the continuous variables and the value of zero for each dummy variable.

The value of  $(-A - X_i B)$  for this example is .999. Therefore, the base case probability of joining the Reserves,  $P_{bc} = \text{Prob}(Y_i=1 | \text{base case } X_i)$ , is

$$P_{bc} = 1 / (1 + \text{EXP}(.999)) = .269$$

Hence, the base case probability for Reserve enlistment intentions in Table 15 is given as .27.

To calculate the partial effects of each explanatory variable taken one at a time, the same procedure as for the base case values of the explanatory variables are used with the exception that the explanatory variable whose partial effect is being assessed has a new value. For example, the probability of a

Table G. Sample logistic calculations  
Base case for first term male reserve intentions

	$B_j$	$X_{ij}$ <u>Base Case</u>	$B_j X_{ij}$
A	-.251		-.251
Contract	-.357	0	0
Black	1.570	0	0
Hispanic	.454	0	0
Combat support	-.141	0	0
Combat support services	.277	0	0
Medical services	-9.103	0	0
Single with dependents	.579	0	0
Married without dependents	-.963	0	0
Married with dependents	1.030	0	0
2 years college education	1.561	0	0
Spouse earns \$200+/week	.713	0	0
Entry age	-.147	19.09	-2.780
Civilian opportunities	.019	8.04	.154
Advancement rate	-.075	8.47	-.633
Maximum parental education	-.034	13.48	-.458
Wages	.361	9.18	3.315
Satisfaction with military job	.737	-.22	-.159
Satisfaction with military benefits	.140	.06	.008
Satisfaction with military lifestyle	.542	-.14	-.073
Satisfaction with relationships	.267	-.38	-.102

$$(-A - X_i B) = .999$$

$$P_{bc} = 1 / (1 + \text{EXP}(-A - X_i B)) = .269$$

$X_{ij}$  = value of jth variable for individual i.

$B_j$  = coefficient of jth variable in first term male Reserve intentions model

member joining the Reserves who has the base case characteristics except is in a combat support MOS, not a combat MOS, is:

$$P = 1 / (1 + \text{EXP}(.999 - (-.141))) = .242$$

In this example the value of .999 was obtained from the base case calculation and  $(1 * -.141)$  is the change in  $-A - X_i B$  for the combat support MOS. The partial effect of being in a combat support MOS as compared to a combat MOS on prior service Reserve enlistment intentions is then given by  $.242 - .269 = -.027$  as indicated in Table 15.

Appendix H. Reserve intention probability estimates

		<u>Scenario 1</u>		<u>Scenario 2</u>	
	B	X	EX	X	EX
A	-.251				
Contract	-.357	1	-.357	0	0
Black	1.570	1	1.570	0	0
Hispanic	.454	0	0	0	0
Combat support	-.141	0	0	1	-.141
Combat support services	.277	0	0	0	0
Medical service	-9.103	0	0	0	0
Single with dependents	.579	0	0	0	0
Married without dependents	-.963	0	0	1	-.963
Married with dependents	1.030	0	0	0	0
2 yrs college education	1.561	0	0	1	1.561
Spouse earns \$200+/wk	.713	0	0	0	0
Entry age	-.147	18	-2.646	22	-3.234
Civilian opportunities	.019	8.04	.154	8.04	.154
Advancement rate	-.075	8.47	-.633	11.47	-.860
Maximum parental education	-.034	13.48	-.458	13.48	-.458
Wages	.361	9.18	3.315	9.18	3.315
Satis. with military job	.737	-.22	-.159	-.22	-.159
Satis. with military benefits	.140	.06	.008	.06	.008
Satis. with military lifestyle	.542	-.14	-.073	-.14	-.073
Satis. with military relationships	.267	-.38	-.102	-.38	-.102
	$(-A - X_i B)$		-.368		1.203
	Prob $(Y=1   X_i)$		.591		.231

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